

TABLE OF CONTENT

2013/2014	=	=	=	=	=	=	=	=	=	A- A6
2012 / 2013		A7 -A12
2012 / 2013	DIRECT ENTRY									.B1- B6
2011 / 2012	Direct Entry	..								C1- C6
2011 / 2012	Morning	..								D1-D6
2011 / 2012	Afternoon	..								E1-E6
2010 / 2011	Morning	..								F1-F6
2010 / 2011	Afternoon	..								F7-F12
2009/2010	Morning	--								G1-G6
2009/2010	Afternoon	--								H1-H6
2008/2009	=	=	=	=	=	=	=	=	=	i1- i6
2007/2006		=	=	=	=	=	=	=	=	i7-i 12
2006/2005	=	=	=	=	=	=	=	=	=	i13-i18
2005/2006	=	=	=	=	=	=	=	=	=	i19-i24
										ANSWERS
20013 /2014	=	=	=	=	=	=	=	=	=	A184
2012 /2013	=	=	=	=	=	=	=	=	=	A190
2012 /2013	DIRECT ENTRY									B195
2011 /2012	DIRECT ENTRY									C188
2010/2011	MORNING =									F170
2010 /2011	AFTERNOON =									F176
2009/2010	MORNING =									C 158
2009 /2010	AFTERNOON =									H164
2008	=	=	=	=	=	=	=	=	=	i133
2007	=	=	=	=	=	=	=	=	=	i138
2006	=	=	=	=	=	=	=	=	=	i142
2005	=	=	=	=	=	=	=	=	=	i146
LECTURE NOTE	=	=		=	=	=	=	=	=	i149
Repeated questions	=	=		=	=	=	=	=	=	s1-s18

**INSTRUCTION AND FORMAT ON HOW TO FILL YOUR PERSONAL DATA ON THE COMPUTER SHEET
AND HOW TO MAKE JUDICIOUS USE OF THE LIMITED TIME GIVEN TO YOU**

Post UTME is made up of three categories of questions:

Categories	questions	Mark	Time
English	25	25	15minutes
Aptitude test	25	25	15minutes
General paper	50	50	30minutes
Total	100	100	1 hours

It should be noted that you are expected to use less than one minute to answer one question. Hence, This made easy will make you to know the areas were you are better off. Study this made easy past question very well and know were you have advantage. If you have advantage in English start with English, if you have advantage in aptitude test start with aptitude test, if you have advantage in general paper start with general paper. It is advisable to start with English or general paper depending on the Student

Things to know about the screening exercise

- your high score in Jamb does not give you 100% guarantee of gaining admission but advantage in the screening exercise, that is, if you perform well in the post UTME exercise and also if you have 180 -220 in Jamb and you are very serious you have a higher chances of gaining admission than those who score high in Jamb and fail woefully in post UTME exercise
- By the time you have used this made easy series past questions and answers to study, you must have know how they set their questions and prepare yourself in a harder way awaiting the screening exercise
- It has been observed that must student who show more seriousness in the post UTME exercise gain admission into the university than those who have high marks in Jamb and refuse to take post UTME exercise serious

Some of the reason while student fail or have missing score

- Failure to obey instruction
- Spending too much time in one question
- Too much confident
- Shading with 2B pencil instead of HB pencil
- writing in a special centre
- Shading wrong jamb registration number
- Shading two answers at the same time

DELSU POST UTME SCREENING EXERCISE

PAST QUESTIONS

FOR
2013/2014 MORNING

SURNAME (Capital Letters) _____

OTHER NAMES _____

JAMB REGISTRATION NUMBER _____

PROPOSED FACULTY _____

PROPOSED DEPARTMENT _____

QUESTION PAPER CODE: 9:001:A

TIME: 1 HOUR

1. DO NOT OPEN THE QUESTION PAPER UNTIL YOU ARE ASKED TO DO SO
2. ANSWER SHEETS MUST NOT BE TAKEN OUT OF THE EXAMINATION HALL
3. DO NOT DETACH LEAFLETS
4. SHADE THE CORRECT ANSWER IN EACH QUESTION

SCIENCE , SCIENCE EDUCATION, ENGINEERING, AGRIC.
SCIENCE, COLLAGE OF HEALTH SCIENCE AND DIRECT ENTRY

ALL PROGRAMMES

POST-UTME SCREENING TEST (SCIENCE) OPTION Y

In each of questions 1 to 3 select the option that best explains the information conveyed in the sentence

1. She is very light fingered
(w) she is skilful with her hands
(x) she is apt to take things
(y) She has a gentle touch
(z) She is careless
2. The teacher turned a blind eye to the lateness of Mary
(w) He did not notice it
(x) He disapproved of it
(y) He did not bother about it
(z) He was unable to detect it
3. The dispute has now come to a head
(w) It has reached a gigantic proportion
(x) It has reached a crucial stage
(y) It has reached the head of the manager
(z) It has got to the head office

From questions 4 to 5 choose the option nearest in meaning to the underlined

4. You should learn to live within your meager means
(w) plenty (x) surplus (y) inadequate (z) immense
5. Soyinka's plays will not be ephemeral
(w) multi-coloured (x) short-lived (y) built-in (z) long-lived

Read passage 1 carefully and answer the questions 6-10

Advertisements are part of our everyday lives. We meet them in newspapers, on the radio and television, in the street and even in buses and trains. We are so accustomed to them that it would be very strange to wake up one morning and find that they had all disappeared.

Yet advertising by manufacturers only occurs on a large scale in democratic countries, where free enterprise leads to competition and competition to advertisement. In certain totalitarian countries where the state control production, there is a cut-throat competition but equally there are very few brand names and only a meager choice of articles. In these circumstances, most of the brand names are naturally well-known. If there is, for instance, only one brand of toothpaste, it is pointless to advertise it.

On the other hand, people often feel that competing manufactures spend so much money on advertising their various brands that they have to increase the price of

their articles considerably in order to cover the advertising costs. Although a lot of money is spent on advertising, this only raises the selling price of each mass-produced article by an insignificant amount. And from the manufacturer's point of view, such a small price reduction would be a poor selling device. It might attract a few purchasers who would not otherwise buy the article, but their number would be nothing in comparison with those who are attracted by advertisements.

Even though advertisement are the result of competition, they do have a useful function: that of giving information. Of course, people often complain that – with all their exaggerations, half truths and distorted facts – advertisement misinform rather than inform. But do any of us really believe what we are told in the advertisement?

6. Which of the following is true according to the passage?
(w) advertisement is very costly
(x) advertisement leads to high cost of articles
(y) advertisement is not necessary
(z) advertisement is a common phenomenon
7. Advertisement is not common in ____
(w) totalitarian setting (x) democratic societies
(y) indigenous settings (z) demographic experiments
8. Advertisement is basically an off-shoot of ____
(w) competition (x) anxiety (y) ignorance
(z) inconsistency
9. Advertisement informs and mis-informs. Therefore it is
(w) double (x) careless (y) ambiguous (z) sadistic
10. The last statement in the passage is an example of
(w) rhetorical question (x) hyperbole (y) oxymoron
(z) personification

From 11 to 13 choose the option that is opposite in meaning to the underlined and which can also fill the gap.

11. We were defeated but our junior team was ____
(w) vicarious (x) protected (y) pummeled (z) victorious
12. Mr. Omoni made a lot of profit today unlike the ____ of yesterday
(w) purchase (x) share (y) loss (z) gross
13. Theo usually labours when talking, but Amaka she speaks...
(w) fluently (x) painfully (y) fearfully (z) forcefully

From 14 to 16 choose the option that has the same vowel sound as the one underlined

14. Sea
(w) sit (x) realm (y) piece (z) rich
15. Set
(w) remain (x) seize (y) net (z) pretty
16. Pass
(w) plait (x) marry (y) rash (z) part

From 17 to 22 choose the option that best complete each of the following sentences

17. The...of the food filled the whole compound
(w) fragrance (x) scent (y) aroma (z) perfume
18. He was caught distributing political____
(w) brochures (x) circulars (y) bulletins (z) pamphlets
19. She__ her spoon in the soup and tasted it.
(w) inserted (x) sank (y) buried (z) dipped
20. When rescued from the sea, he was__ with cold.
(w) shivering (x) quaking (y) trembling (z) quivering
21. He was so angry he couldn't talk____
(w) efficiently (x) capably (y) proficiently (z) coherently
22. He delighted them with his__ supply of stories.
(w) interminable (x) inexhaustible (y) immeasurable (z) illimitable

From 23 to 25 choose the option that best completes the gap

23. He came__ the room and sat down.
(w) over (x) into (y) around (z) off
24. John has been ill__ last Friday
(w) before (x) after (y) till (z) since
25. Will you please__ me your book?
(w) lend (x) supply (y) borrow (z) excuse

Identify the Odd one in the options for each number

26. (w) Ibadan (x) Jos (y) Enugu (z) Kaduna
27. (w) Rotimi Aamechi (x) Kayode Fayemi (y) Idris Wazir (z) Sanusi Lamido

For each number below (28-30) identify the anagram to the given word

28. STAPLE (w) pin (x) please (y) apple (z) plates
29. CANOE (w) ocean (x) kano (y) boat (z) cane
30. SLAIN (w) saint (x) nails (y) pain (z) kill

Use the following to logic for questions 31-34

Logic 3 N 4 = 14, 2 N 3 = 10, 6 N 2 = 16

31. $17N [] = 40$ (w) 23 (x) 3 (y) 2 (z) 6

32. $[] B 2 = 40$ (w) 18 (x) 20 (y) 14 (z) 28

33. $1 N [] = 6$ (w) 4 (x) 1 (y) 3 (z) 2

34. $9 N 4 = []$ (w) 26 (x) 36 (y) 18 (z) 40

Choose the word that best completes the following phrases

35. Dog is to bark as pig is to__ (w) hum (x) grunt (y) rumble (z) squeak
36. Duck is to__ as bee is to hum (w) chatter (x) crow (y) blare (z) quack
37. Cat is to kitten as horse is to__ (w) cub (x) kid (y) colt (z) ass
38. Abuja is to Nigeria as __ is to Uganda (w) Lusaka (x) Harare (y) Kampala (z) East Africa
39. The 2014 FIFA world cup will take place in (w) Spain (x) Japan (y) south Africa (z) Brazil
40. The Governor of Kano State is
(w) Ibrahim Shema (x) Rabiu Kwankanso (y) Jonah Jang (z) Babangida Aliyu
41. The headquarters of the African Union is located in
(w) Abuja (x) Cairo (y) Adis Ababa (z) Johannesburg

Use the logic below to find the missing numbers in questions 42 to 43

Logic: $6 \rightarrow 16 \leftarrow 2$, $1 \rightarrow 2 \leftarrow 0$, and $\frac{1}{2} \rightarrow 12 \leftarrow 5\frac{1}{2}$

42. $4 \rightarrow [] \leftarrow 6$ (w) 20 (x) 10 (y) 24 (z) 18

43. $3\frac{1}{2} \rightarrow [] \leftarrow 7$ (w) 21 (x) $10\frac{1}{2}$ (y) $4\frac{1}{2}$ (z) 19

Indicate the odd one from the options (No 44-46)

44. (w) Doctor (x) Nurse (y) Engineer (z) Pharmacist
45. (w) mosque (x) church (y) minaret (z) Koran
46. (w) Gowon (x) buhari (y) shagari (z) babangida

NOTE $4A5 = 15$, $6A7 = 35$ and $9A1 = 8$ use this logic to find the missing number in questions 47 to 50

47. $9A8 = []$ (w) 63 (x) 72 (y) 64 (z) 70

48. $4A(3A2) = []$ (w) 12 (x) 20 (y) 24 (z) 18

50. $(5A7)A2 = []$ (w) 54 (x) 68 (y) 56 (z) 48

51. 15% of a certain number is 6. What is the number?
(w) 200 (x) 400 (y) 600 (z) 800
52. Convert 257 in base ten to base 12 (w) 160 (x) 221
(y) 195 (z) 215
53. How many seconds are in 5 hours? (w) 7224secs (x)
1606secs (y) 1800secs (z) 1908secs
54. What are the possible values of x given that
 $\text{Log}_2(x^2 + 5x + 14) = 3$?
(w) -4, 3 (x) -3, -2 (y) -1, -5 (z) -5, -7
55. A trader sold a bicycle at N10,000 with 25%
profit. His cost price is
(w) N12,000 (x) N8,000 (y) N6,000 (z) 14,000
56. Three pencils and one rulers cost N13 while two
pencils and cone ruler cost N8. How much is the
cost of one pencil and one ruler respectively?
(w) N5, N3 (x) N4, N6 (y) N2, N7 (z) N3, N2
57. The geometric mean of 2 and 98 is
(w) 8 (x) 24 (y) 18 (z) 14
58. y is inversely proportional to x and $y = 4$ when $x = \frac{1}{2}$
Find x when $y = 10$
(w) $\frac{1}{10}$ (x) $\frac{1}{5}$ (y) 2 (z) 10
59. Two angles in a triangle are 87° and 33° . the
remaining angle is
(w) 72° (x) 90° (y) 60° (z) 120°
60. A line touching the circumference from outside a
circle is called
(w) secant (x) chord (y) radius (z) tangent
61. If $132_x = 42$ where x is a number base and the right
hand side is denary. Find x (w) 6 (x) 5 (y) 8 (z) 4
62. The quadratic equation whose roots are -4 and 3 is
(w) $x^2 + x - 12 = 0$ (x) $x^2 + 7x + 12 = 0$
(y) $x^2 = 2x + 12 = 0$ (z) $x^2 + 5x - 12 = 0$
63. If the opposite parallel sides of a trapezium 8m and
12m, find the area if its height is 4m
(w) 28m^2 (x) 36m^2 (y) 54m^2 (z) 40m^2
64. Two numbers are such that their sum is -18.
Suppose that one is 8 greater than the other, find
the number
(w) 13 and 5 (x) 10 and 6 (y) -13 and 5 (z) -10 and 8
65. A converging thin lens has a focal length of 27cm.
an object is placed 9cm from the lens. What is the
image distance from the lens
(w) 13.5cm (x) 18.0cm (y) 3.0cm (z) 36.0cm
66. When the image formed by a convex mirror is
compared to its object, the image is usually
(w) erect and smaller (x) inverted and imaginary
(y) real and inverted (z) real and erect
67. By which of the following can a real image be
produced?
(w) concave mirror (x) plane mirror (y) diverging lens
(z) convex mirror
68. A particle is oscillating according to the equation $x =$
 $7\cos 0.5\pi t$, where t is in second. The point moves
from the position of displacement to maximum
displacement 1 time $t =$
(w) 4.0sec (x) 2.0sec (y) 1.0sec (z) 0.5sec
69. A ball leaves a girls hand with an upward velocity of
6m/s. what is the maximum height of the ball above
the girls hand?
(w) 1.8m (x) 6.0m (y) 12.0m (z) 18.0m
70. The time needed for a net force of 10N to change
the velocity of a 5kg mass by 3m/s is
(w) 1.5sec (x) 6.0 sec (y) 16.7sec (z) 150sec
71. A 25 watt, 220volt bulb and a 100watt, 220 volt bulb
are connected in series across a 220 volt line. Which
electric bulb will blow more brightly.
(w) 24 watt bulb (x) 100watt bulb (y) both glow at the
same rate (z) both with same brightness
72. Used normally, a 150W, 120V light bulb requires
how many amperes of current?
(w) 1.25A (x) 2.50A (y) 3.00A (z) 0.80.
74. What is te Celsius temperature corresponding to 100
degrees Kelvin? (w) -173°C (x) 0°C (y) 100°C (z)
 173°C
75. The temperature of hot and cold end of a 20cm long
rod in thermal steady state are at 100°C and 20°C
respectively. What is the temperature of the centre
of the rod?
(w) 60°C (x) 50°C (y) 40°C (z) 30°C
76. The calorie is defined as the quantity of heat
required to raise the temperature of
(w) 1g of water by 1°C (x) 1g of water by 100°C
(y) 1g of water by 4°C (z) 1g of water by -273K .
77. A sample of orange juice is found to have a pH of
3.80. what is the concentration of the hydroxide ion
in the juice?
(w) 1.6×10^{-4} (x) 6.3×10^{-11} (y) 6.3×10^{-4}
78. $\text{CaO}_{(s)} + \text{H}_2\text{O}_{(l)} \rightarrow \text{Ca(OH)}_{2(s)}$ $\Delta H = -65\text{KJ}$. The process
represente4d by the above equation is known as
(w) dissolution (x)slaking (y) liming (z) mortaring

79. The modern process of manufacturing steel from iron is by
 (w) treatment with acid (x) oxidation (y) blast reduction
 (z) treatment with alkalis
80. The periodic classification of the elements is an arrangement of the elements in order of their
 (w) atomic mass (x) atomic number (y) atomic volume (z) molecular weight
81. Helium atoms are chemically unreactive because:
 (w) there are no electrons around the nucleus (x) the number of protons equal the number of electrons (y) the atoms contain only protons (z) the outer electron shell is completely filled
82. How many grams of hydrogen gas will be liberated when 6g of magnesium ribbon dissolves in 500cm³ of 6M HCl?
 (1.2g (x) 0.7g (y) 0.5g (z) 0.3g
83. In the electrolysis of brine, the anode is
 (w) platinum (x) copper (y) zinc (z) carbon
84. In the electrolytic extraction of aluminium, the function of molten cryolite is to:
 (w) precipitate aluminium hydroxide (x) lower the melting point of aluminium oxide (y) act as raw material (z) act as a solvent
85. 0.05 moldm⁻³ HCl is neutralized by 25cm³ NaOH. If the solvent volume of the acid used is 32.0cm³. What is the concentration of the base?
 (w) 0.016moldm⁻³ (x) 0.032moldm⁻³ (y) 0.039moldm⁻³ (z) 0.064moldm⁻³
86. If concentrated H₂SO₄ is added to sugar and warmed gently, the sugar changes from white to brown and finally to a black mass of carbon. In this reaction, concentrated H₂SO₄ is acting as:
 (w) a drying agent (x) an oxidizing agent (y) a dehydrating agent
 (z) a reducing agent
87. Which of the following can have an isomer?
 (w) C₂H₄ (x) C₄H₁₀ (y) C₃H₆ (z) C₆H₆
88. The final products of the reaction between methane and chlorine in the presence of ultraviolet light are hydrogen chloride and
 (w) chloromethane
 (x) tetrachloromethane
 (y) trichloromethane
 (z) dichloromethane
89. Which of the following represents the phenotypic ratio of the above genetic cross (w) 1:2:1 (x) 4:1 (y) 3:1 (z) 2:2
90. The surface of an alveolus in a mammal is well supplied with tiny blood vessels known as
 (w) arterioles (x) venules (y) arteries (z) capillaries
91. The nitrogenous substance that is excreted by birds in order to conserve water is
 (w) ammonia (x) uric acid (y) urea (z) nitric acid
92. Mr. Ochuko usually works in a swamp during which he neither eat food nor drink any water. Which of these diseases Mr. Ochuko cannot contract (w) cholera (x) sleeping sickness (y) Bilharziasis (z) river blindness
93. One of the following statements is not true of viruses
 (w) they are microorganisms (x) they are smaller than bacteria (y) they causes polio and small pox (z) they can be seen by ordinary light microscope
94. A gene which expresses itself only in the homozygous condition is
 (w) a mutant (x) dominant (y) lethal (z) recessive
95. A characteristic of the phylum coelenterate is that
 (w) most of them are marine (x) they possess a gape with a single opening (y) they possess numerous pores on their body (z) they are bilaterally symmetrical.
96. The smallest living organisms which share the characteristics of both living and non-living matter are
 (w) bacteria (x) fungi (y) viruses (z) protozoa
97. 2.8g soil sample was heated to a constant weight of 24g. When further heated to red hot and cooled, it weighed 18g. What is the percentage of humus in the soil. (w) 22.2 (x) 55.6 (y) 75.0 (z) 25.0
98. Oviparity is the type of fertilization exhibited by the organisms labeled (w) I (x) II (y) III (z) IV
99. Thunderstorm can be beneficial to plants because
 (w) kills the pest that attack crops (x) destroy some of the major crops (y) makes rain water available to soil (z) add nitrates to the soil
100. The organic molecules present in the nucleus is/are
 (w) DNA (x) protein, RNA and DNA (y) RNA and ATP (z) RNA

DELSU POST UTME SCREENING EXERCISE

PAST QUESTIONS

FOR
2012/2013 MORNING

SURNAME (Capital Letters) _____

OTHER NAMES _____

JAMB REGISTRATION NUMBER _____

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QUESTION PAPER CODE: 9:001:A

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ALL PROGRAMMES

ENGLISH LANGUAGE 2012 / 2013

Instruction: Read the passage below and answer the questions that follow.

They endeavour to maintain proper standards of fairness in Journalism must be pursued. It is fatally easy for the Journalist to deviate from the straight path. There is his natural desire to "make a story" and insidious temptation to twist facts to square with his papers policy. Both indefensible as the framing of misleading headlines for the sake of effect. The conscientious journalist must check any tendency to bias, and guard against the dangers inherent in personal antipathies of friendships, and in traditional opposition between rival schools of thought. When a political opponent, whose stupidity habitually provokes attack, makes an effective speech, honesty requires that he should be given credit for it.

1. The duty of the journalist to the public entail
(a) telling the truth (b) trying to make a story
(c) keeping quiet when necessary (d) defending the weak
2. A dutiful journalist must
(a) be able to make an effective speech
(b) have political acumen (c) be able to recognize merit whenever found d) read widely
3. Insidious as used in the passage mean
(a) wild (b) wicked (c) unusual (d) subtle
4. When may a journalist have to act against his own inclination?
(a) after he has been given a bribe
(b) when his enemies make a mistake
(c) when he become weak and decrepit
(d) when his friends acts stupidly
5. A journalist would be able to uphold the tenants of his profession if:
(a) he tries to protect his friends
(b) he resists temptation to bias
(c) he seeks publicity
(d) he tries to achieve publicity

Instruction: Choose the option that conveys the meaning of the underlined portion in each of the following sentences

6. The result of Dr. Ese's experiment represents a break through in medical science.
(a) catastrophe (b) a breaking point
(c) an outstanding success
(d) an end to such experiments

7. When the man was caught by the police, he presented a bold front
(a) he faced the situation with apparent boldness
(b) he attacked the policemen boldly
(c) he bravely attempted to bribe the policemen
(d) he frowned at them in a deficient manner
 8. Publishers say that newsprint has become more expensive
(a) newspapers (b) publishing news (c) paper for printing (d) printer's salaries and wages
 9. His attempts were nipped in the bud
(a) frustrated (b) unsuccessful (c) cut-shot (d) disqualified
 10. The task was herculean
(a) irregular (b) related to hercuuis
(c) demanding (d) stimulating
 11. The sudden death of the king put paid to the ambition of the minister
(a) rewarded (b) encouraged (c) benefited (d) terminated
 12. Edefe was a mindless criminal
(a) heartless (b) mindful (c) strong (d) memorable
- Instruction:** Complete each of the following sentences by choosing the option that best suitably fills the space
13. Why do you worry about such ___ matters
(a) non-significant (b) insignificant
(c) insignificant (d) significant
 14. The Pastor said lay ___ your hearts to God
(a) bear (b) bare (c) bar (d) barred
 15. The point ___ the story is that he is the man's son
(a) of (b) in (c) off (d) around
 16. What is relief the strike ___ when it
(a) ended (b) would ended (c) has ended (d) is ending
 17. I saw you walking in that direction, but I did not know exactly ___
(a) where you are going (b) where are you going
(c) where you were going (d) to where were you going
 18. Do you know if the new teacher ___ yet
(a) has arrive (b) will be arriving
(c) has arrived (d) has been arriving

Instruction: Choose the word which is opposite in meaning to the underlined word in each sentence

19. Unless we see the evil clearly, contending against them is like fighting their air
(a) avoiding (b) struggling with
(c) combating (d) repelling
20. Nigeria is gradually experiencing economic recession
(a) destruction (b) discovery (c) recovery (d) birth
21. Since mortality is the lot of man, argued the preacher, we must all accept death with equanimity
(a) anxiety (b) concern (c) uncertainty (d) serenity
22. I was advised to stay away from cities that are ravaged by crime
(a) spoilt by (b) suffering from
(c) haven of (d) free from
23. Adam's father simply condoned her bad habits instead of punishing her appropriately
(a) opposed (b) blamed (c) accepted (d) forbade
24. The debtor's husband is liable for his wife's debt
(a) unanswerable (b) responsible
(c) unquestionable (d) accountable
25. In an English sentence, there is always a concord between the subject and the verb
(a) disagreement (b) harmony
(c) harmoniousness (d) agreement

APTITUDE

26. Which of the following numbers is prime?
(a) 117 (b) 147 (c) 159 (d) 149
27. A boy was asked to multiply a number by $\frac{7}{8}$ instead he divided the number by $\frac{7}{8}$ and got the result more than the correct result. The number was
(a) 96 (b) 36 (c) 56 (d) 65
28. The eight term of 9,6,3,0... is
(a) 8 (b) -12 (c) -14 (d) 6
29. The expression $\log \frac{11}{5} + \log \frac{14}{3} - \log \frac{22}{15}$ is equal to
(a) $\log 2$ (b) $\log 3$ (c) $\log 7$ (d) $\log 5$
30. The difference between the place values of 7 and 3 in the number 527435 is
(a) 4070 (b) 6790 (c) 3690 (d) 6970

Direction to question 31 to 35: The following questions consist of two words each of them have certain relationship to each other, followed by four lettered pairs of words. Select the lettered pair that has the same relationship as of the original pair of words

31. Trees: Branches
(a) River : Tributaries (b) continent: island
(c) stream: Delta (d) Ocean: seas
32. Relax: Work
(a) play: Cheat (b) Lunch: Dinner
(c) Smile: Laugh (d) Fresh: Cube
33. Square: Cube
(a) line: Cylinder (b) Triangle: Prism
(c) Circle : Sphere (d) Sphere : earth
34. Carnivore: Herbivore
(a) animal : bird (b) camel : giraffe
(c) flesh : plant (d) horse : lion
35. Accident: Mishap
(a) abrupt: Sudden (b) Eminent: Notorious
(c) Pacify: Provoke (d) Death : Plenty
36. If train is called bus, bus is called tractor, tractor is called car, car is called scooter, scooter is called bicycle, bicycle called moped, which is used to plough a field?
(a) train (b) bus (c) tractor (d) car
37. Pointing to a man on the stage, Rita said "He is the brother of the daughter of the wife of my husband". How is the man on the stage related to Rita
(a) Son (b) husband (c) cousin (d) brother-in-law
38. Rahul told Anand "Yesterday defeated the only brother of the daughter of my grand mother"
(a) son (b) father (c) brother (d) father-in-law
39. A man is facing south. He turns 135 degrees in the anticlockwise direction and then 180 degree in clockwise direction. Which direction he is facing now?
(a) north-east (b) north-west
(c) south-east (d) south-west
40. 36 vehicles are parked in the single row. After the first three is one scooter after the second car there are scooters after the third car there are three scooters and so on work out the number of scooters in the second half of the row.
(a) 10 (b) 12 (c) 15 (d) none of these
41. A number greater than 3 but less than 8 also it is greater than 6 but less than 10. The number is
(a) 5 (b) 6 (c) 7 (d) 9

42. If the length and breadth of rectangular plot are increased by 50% and 20% respectively, the new areas will be how many times than that of original area?

- (a) 4 (b) 9.6 (c) 11/5 (d) 9/5

43. A mixture contains alcohol and water in the ratio of 4:3. If 7 ltrs of water is added to the mixture the ratio of alcohol and water becomes 3:4. Find the quantity of alcohol in the mixture.
(a) 12ltrs (b) 8ltrs (c) 9ltrs (d) 15ltrs

Directions for questions 44 to 47: Each question has a part of the sentence or the entire sentence underlined, this is followed by four different ways of phrasing the sentence. Choose the alternative which is grammatically correct and concise.

44. More than 35 school children. Some of them who were as young as nine. Were killed when an explosion ripped through their primary school

- (a) more than 35 school children, some as young as nine
(b) more than 35 school children, some as young as nine
(c) as many as 35 school children, some as young as nine
(d) not less than 35 school children, some as young as nine.

45. in view of the reasons that have cited. I hereby recommended passing of the resolution.

- (a) in lieu of the reason given
(b) because the reasons have been given
(c) in view of the reasons given
(d) in view of the reasons that have been cited.

46. Mrs. Pooja, our class teacher and who is also a member of the school committee can speak excellent German

- (a) who is also a member of the school committee can speak excellent German
(b) who also is a member of the school committee can speak excellent German
(c) Also a member of the school committee can speak in German
(d) a member of the school committee can speak sexcellent German

47. As Sohan was on probe he was determined to not fall foul of the law

- (a) was on parole he was determined to not fall foul of the law
(b) was on parole. He was determined not to fall foul of the law
(c) was in parole, he was eager to avoid the law
(d) was parole, he did not with to provoke the law

48. If the letters of the word 'EQUATION' be arranged at random, what is the probability that all vowels are together.

- (a) 1/8 (b) 1/12 (c) 1/12 (d) 1/14

Direction for question 49-50: Answer the questions based on the following information. N is a natural number and it has only four distinct factor - 1 a. B and N itself (Assume that a is always less than b)

49. Integer a is a
(a) prime number (b) odd but not prime number
(c) even number (d) composite number

50. a. a. b = (a) N (b) N^2 (c) \sqrt{N} (d) a.N

GENERAL PAPER

51. There are 40 identical balls in a box. If the balls are either red or white and the probability of picking a red balls is $\frac{1}{4}$ then the total number of white balls is

- (a) 30 (b) 20 (c) 10 (d) 40

52. The liquid in a cone of radius rcm and height 12cm is poured into a cylinder of the same base radius. Calculate the height of the water in the cylinder

- (a) 8cm (b) 14cm (c) 6cm (d) 4cm

53. Solve $2^{2x} - 5(2^x) + 4 = 0$

- (a) 3 or -5 (b) 0 or 2 (c) 1 or 4 (d) -3 or 1

54. Factorise $125x^2 - 1$

- (a) $(5x+1)(25x^2-1)$ (b) $(25+1)(10x^2+5x+1)$
(c) $(5x+1)(25x^2+5x+1)$ (d) $(50x-1)(5x^3+3x^2+x-1)$

55. If y varies inversely as the cube root of x and y = 6 when x = 64 find y when x = 125

- (a) $5\frac{5}{6}$ (b) $3\frac{3}{4}$ (c) $4\frac{4}{5}$ (d) $6\frac{6}{7}$

56. If p % of a number n equal k, what is 7 % of n?

- (a) $\frac{7k}{100p}$ (b) $\frac{k}{200p}$ (c) $\frac{k}{3p}$ (d) $\frac{7k}{p}$

57. For what values of x is the expression $x^2 - 4x - 1/x^2 + x - 2$ undefined?

- (a) -2, 1 (b) -3, 2 (c) -1, 4 (d) -5, 2

58. The bearing of A from B is $N10^\circ W$. find the bearing of B from A

- (a) 170° (b) 180° (c) 165° (d) 120°

59. If the mean of 5, x, 8, 14, 10, 16 is 10; find the median

- (a) 12 (b) 11 (c) 9 (d) 13

60. The first term of an AP is 3. If the sum of the first 8 terms is 80, then the common difference is?

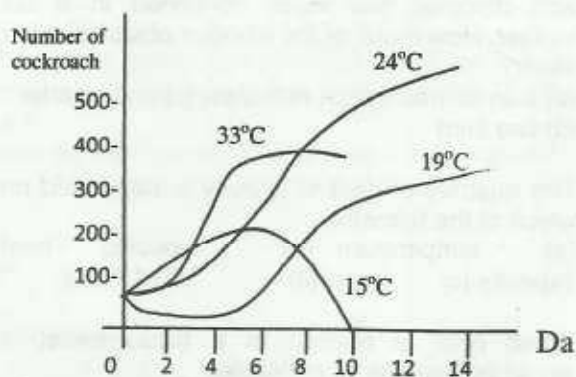
- (a) 2 (b) 7 (c) 9 (d) 4

61. The length of rectangle is 4cm longer than its breadth. If the area is 60cm^2 , find its length
(a) 14cm (b) 10cm (c) 12cm (d) 8cm
62. Find x if $\log_9 X = \frac{1}{2}$
(a) -8 (b) 5 (c) 2 (d) 3
63. A rectangular carpet measures 16m by 12m and it has stained borders of width 2m surrounding it. What is the area of the boarder
(a) 360m^2 (b) 128m^2 (c) 221m^2 (d) 400m^2
64. An ogive is perfectly called
(a) frequency curve (b) cumulative frequency curve
(c) frequency distribution curve (d) curve
65. An object is dropped from rest from a certain height. After a distance d, the object's kinetic energy is proportional to which of the following?
(a) $1/d^2$ (b) $1/d$ (c) \sqrt{d} (d) d^2
66. A particle of mass 100g is thrown vertically upwards with a speed of 5m/s. the work done by the force of gravity during the time the particle goes up is....
(a) -0.5J (b) -1.125J (c) 0.5J (d) 1.25J
67. What is the length of a simple pendulum that has a period of 2.8 seconds ($g = 9.8\text{m/s}^2$).
(a) 60cm (b) 91cm (c) 136cm (d) 196.5cm
68. A wooden object whose density is 0.06g/cm^3 was dropped into water contained in a tall beaker. How much of the wooden object is in the water?
(a) a small fraction (b) one-sixth (c) one-quarter (d) two third
69. The quantity of heat in a body is depended on which of the following..
(a) temperature (b) specific heat capacity (c) mass (d) all of these
70. When heat is applied to a brass metal, it expands because its molecules___
(a) vibrate with smaller amplitude
(b) vibrate with greater amplitude
(c) increase their speed of random motion
(d) decrease their speed of random motion
71. 80cm^3 of a gas is measured at 8°C and 740mmhg. What is the volume of the gas at standard temperature and pressure.
(a) 75.7cm^3 (b) 79.3cm^3 (c) 84.1cm^3 (d) 87.5cm^3
72. For a sound speed of 350m/s what would be the wavelength of a 5000Hz sound?
(a) 2cm (b) 3.5cm (c) 5cm (d) 7cm
73. Which of the following attributes of a musical note helps the ear to differentiate between notes on the basis of their source.
(a) pitch (b) intensity (c) quality (d) all of these
74. Which of the following instruments could be used in finding the angle of elevation of the sun?
(a) periscope (b) telescope (c) kaleidoscope (d) sextant
75. In a transformer, the number of turns of primary coil and secondary coil are 5 and 4 respectively. If 220 volts is applied on the primary coil, then the ratio of primary current to the secondary current will be...
(a) 4:5 (b) 5:4 (c) 5:9 (d) 9:5
76. The plate of parallel plate capacitor of area 3m^2 are kept 8 mm apart in a vacuum. What is the capacitance of the capacitor ($\epsilon_0 = 8.54 \times 10^{-12}\text{f/m}$)?
(a) $3.0 \times 10^{-19}\text{F}$ (b) $4.0 \times 10^{-19}\text{F}$
(c) $5.0 \times 10^{-19}\text{F}$ (d) $5.5 \times 10^{-19}\text{F}$
77. The efficiency of a solid catalyst to increase reaction rates depends on its
(a) solubility (b) surface area
(c) concentration (d) quantity
78. The volume of 2.5 moles of oxygen at S.T.P is
(a) 50.0dm^3 (b) 84.0dm^3 (c) 28.0dm^3
(d) 56.0dm^3 (molar volume of a gas at S.T.P = 22.4dm^3)
79. Which of the following represents an aromatic compound?
(a) $\text{C}_6\text{H}_5\text{OH}$ (b) C_6H_{12} (c) $\text{C}_6\text{H}_9\text{OH}$ (d) C_6H_8
80. A compound contains 31.91% potassium, 28.93% chlorine and the rest oxygen. What is the chemical formula of the compound?
(a) KClO_4 (b) KClO (c) KClO_2
(d) KClO_3 (K = 39, Cl = 35.5, O = 16)
81. 25cm^3 of 0.2moldm^{-3} solution of Na_2CO_3 requires 20cm^3 of a solution of HCl for neutralization. The concentration of the HCl solution is
(a) 0.5moldm^{-3} (b) 0.6moldm^{-3}
(c) 0.2moldm^{-3} (d) 0.4moldm^{-3}
82. A gas X diffuses twice as fast as gas y under the same conditions. If the relative molecular mass of x is 28, calculate the relative molecular mass of y.
(a) 112 (b) 120 (c) 56 (d) 14.
83. Which of the following ion is acidic?
(a) K^+ (b) NO_3^- (c) S^{2-} (d) H_3O^+

84. In the electrolysis of a concentrated solution of sodium chloride at the cathode and the anode respectively?
 (a) Na^+ and Cl^- (b) Na^+ and OH^-
 (c) H^+ and OH^- (d) H^+ and Cl^-
85. A given volume of methane diffuses in 20s. how long will take the same volume of sulphur (iv) oxide to diffuse under the same conditions?
 (a) 5s (b) 20s (c) 40s
 (d) 60s [C=12, H=1, S = 32, O = 16]
86. What volume of 0.5mol dm^{-3} H_2SO_4 will exactly neutralize 20cm^3 of 0.1mol dm^{-3} NaOH solution?
 (a) 2.0cm^3 (b) 5.0cm^3 (c) 6.8cm^3 (d) 8.3cm^3
87. What is the correct IUPAC name for NO_2^- ?
 (a) dioxonitrate (iv) ion (b) trioxonitrate (iv) ion
 (c) trioxonitrate (iii) ion (d) dioxonitrate (iii) ion
88. The pressure of 100cm^3 of oxygen at 35°C is 750mmHg . What will be the volume of the gas if the pressure is reduced to 100mmHg without changing the temperature
 (a) 650cm^3 (b) 850cm^3 (d) 750cm^3 NO
 OPTION C
89. Which of the following is not an outcome of ecological succession:
 (a) there is progressive change in species structure, organic matter and energy flow
 (c) there are fewer dominant species in the late stages of succession
 (d) there is no dynamic equilibrium between the community and habitat in the climax stage.
90. The statement that the environment determines which organism survives to reproduce.
 (a) explains the theory of acquired characters
 (b) support Jean Lamarck's theory of use and disuse
 (c) Supports the idea of survival of the fittest
 (d) implies that organisms modify their environment in order to survive
91. The young chick is formed from
 (a) 3 (b) 3 and 4 (c) 1, 3 and 5 (d) 2
92. Which parts provide food for the developing chick?
 (a) 2 and 3 (b) 4 and 5 (c) 3 and 4 (d) 1 and 2
93. Which of the following sequence represent the process of blood clotting? 1. Fibrin forms a network of threads 2. Red blood cells are caught and a clot is formed 3. Fibrinogen in plasma changes into soluble fibrin 4. Blood is exposed to air.
 (a) 4,3,2,1 (b) 4,3,1,2 (c) 3,1,4,2 (d) 1,2,3,4

94. Groundnut is really a 'nut' in the biological sense because
 (a) it is harvested from inside the ground
 (b) its pericarp is not hard and tough
 (c) the fruit is not as hard as the coconut
 (d) it is an achene
95. A photometer with a leaf shoot weighed 10.9g initially and 17.9g after 1 hour. From thus it follows that:
 (a) the shoot-absorbed 1g of water per hour (b) 1g of water per hour evaporated from the photometer
 (c) the shoot lost 1g of water per hour
 (d) the shoot was respiring and lost weight at a rate of 1g per hour
96. A biotic factor which affects the distribution and abundance of organism in a terrestrial habitat is
 (a) tempter (b) competition
 (c) potential hydrogen ion concentration (pH) (d) light
97. Mendel's second law of inheritance states that
 (a) alleles combine randomly
 (b) alleles segregate independently
 (c) alleles separate predictable
 (d) chromosomes segregate independently

Use the diagram below to answer questions 98 and 99



98. The optimal temperature for breeding cockroaches is
 (a) 15°C (b) 19°C (c) 24°C (d) 33°C
99. At what temperature will cockroach not survive
 (a) 15°C (b) 19°C (c) 24°C (d) 33°C
100. The number of plant species obtained from a population study of a garden is as follows: Guinea grass (15), Ipomea spp (5), sida spp (7) and imperata spp (23). What is the percentage of occurrence of imperata spp.
 (a) 35% (b) 16% (c) 46% (d) 23%

DELSU POST UTME SCREENING EXERCISE

PAST QUESTIONS

FOR 2011/ 2012 AFTERNOON

SURNAME (Capital Letters) _____

OTHER NAMES _____

JAMB REGISTRATION NUMBER _____

PROPOSED FACULTY _____

PROPOSED DEPARTMENT _____

QUESTION PAPER CODE: **9:001:A**

TIME: 1 HOUR

- 1. DO NOT OPEN THE QUESTION PAPER UNTIL YOU ARE ASKED TO DO SO**
- 2. ANSWER SHEETS MUST NOT BE TAKEN OUT OF THE EXAMINATION HALL**
- 3. DO NOT DETACH LEAFLETS**
- 4. SHADE THE CORRECT ANSWER IN EACH QUESTION**

**SCIENCE , SCIENCE EDUCATION, ENGINEERING, AGRIC.
SCIENCE, COLLAGE OF HEALTH SCIENCE AND DIRECT ENTRY**

ALL PROGRAMMES

2011/2012 AFTERNOON

APTITUDE

The number that does not have a reciprocal is

(a) infinity (b) 1 (c) 0 (d) none of the above

How big will an angle of one and a half degree look through a glass that magnifies things three times?

(a) 1½ degree (b) 9/2 degrees (c) 7/2 degrees (d) 3½ degrees

3. A shopkeeper bought a watch for N400 and sold it for N500. What is his profit percentage?
(a) 100% (b) 20% (c) 25% (d) 10%

4. A number 54 is divided into two parts, so that 10 times the first and 22 times second are together equal to 780. The difference of the parts is:
(a) 12 (b) 14 (c) 20 (d) 34

5. DISPARITY (give synonym)
(a) injustice (b) unlikeness (c) partially (d) distortion

6. SALVAGE (give antonym)
(a) outfit (b) lose (c) burn (d) remove

7. 2, 5, 7, 5, __, 13, 25, 17, 20, 75
(a) 8.5 (b) 9.5 (c) 6.75 (d) 10.5

8. A man was engaged on a job for 30 days on the condition that he would get a wage N10 for the day he works, but he has to pay a fine of N2 for each day of his absence. If he gets N216 at the end, he was absent for work for __ days
(a) 3 days (b) 8 days (c) 5 days (d) 7 days

For question 9 and 10, find the next term in the sequence

9. 6, 24, 60, 120, 210, __
(a) 336 (b) 366 (c) 330 (d) 660

10. 8, 24, 12, 36, 18, 54, __ (a)
33 (b) 66 (c) 27 (d) 30

For question 11-12, fill in the missing number in each sequence

11. 0, 1, 4, 9, 16, 25, 36, 49, ?
(a) 64 (b) 58 (c) 76 (d) 88

12. 9, 18, 27, 36, 45, 54, ?
(a) 28, 60 (b) 36, 54 (c) 37, 58 (d) 36, 60

13. I drove 60km at 30kmph and then an additional 60km at 50kmph. Compute my average speed over my 120km.
(a) 35.5 (b) 39.5 (c) 37.5 (d) 29
14. Father's age is five times his son's age. 4 years back the father was 9 times older than son. Find the father's present age
(a) 45 years (b) 40 years (c) 50 years (d) 35 years
15. In simple interest what sum amounts of N1120 in 4 years and N1200 in 5 years?
(a) N500 (b) 600 (c) N800 (d) N900
16. Which of the following statements drawn from the given statements are corrected? Given: all watches sold in that shop are of high standard. Some of the HMT watches are sold in that shop.
(a) all watches of high standard were manufactured by HMT
B Some of the HMT watches are of high standard
(c) None of the HMT watches are of high standard
(d) Some of the HMT watches of high standard are sold in that shop
17. 0, 100, 6, 94, 12, 88, 18, 82, __, __?
(a) 24, 76 (b) 24, 66 (c) 28, 56 (d) 36, 78
18. 1, 1, 2, __, 24, 120, 720
(a) 16 (b) 8 (c) 10 (d) 6
19. If point P is on line segment AB, the which of the following is always true?
(a) AP = PB (b) AP > PB (c) PB > AP (d) AB > AP
20. All men are vertebrates. Some mammals are vertebrates. Which of the following conclusion drawn from the above statement is correct
(a) all men all mammals (b) all mammals are men (c) some vertebrates are mammal (d) none
21. Net: Ball:
(a) winter: weath (b) Game: Penant
(c) Hook: (d) Stadium: Seats
22. Kick: Football::?
(a) manager: tea (b) Break: Piece (c) Smoke: Pipe (d) Kill: Bomb
23. Integrity of character, honesty, dependability and discipline __ with a genuine interest in your work will get a long way in the achievement of success in your professional life.
(a) coupled (b) adjoined (c) fixed (d) attached

Direction for question 24-25

John is undecided which of the four novels to buy. He is considering a spy thriller. A murder mystery, a gothic romance and a science fiction novel. The books are written by Rothko, Gorky, Burchfield and Hopper, not necessary in that order.

24. John purchases books by the authors whose names come first and third in alphabetical order. He does not buy the books ____
NO OPTION
25. On the basis of the first paragraph a statement (2), (3) and (4) only, it is possible to deduce that
(i) Rothko wrote the murder mystery of the spy thriller
(ii) Sparrow published the murder mystery or the spy thriller
(iii) The book by Burchfield is published by Sparrow which of the following statement is not true.
(a) iii (b) ii (c) i (d) all of them

ENGLISH LANGUAGE

In each question 26-30 choose the most appropriate option opposite in meaning to the word(s) underlined

26. The increase in transport fares deterred our club from planning an excursion this year
(a) deferred (b) irritated (c) encouraged (d) restricted
27. The card entitles you to attend the film show
(a) disqualifies (b) discourages (c) satisfies (d) proclaims
28. We will surely buy the idea of introducing a new product.
(a) accept (b) reject (c) refuse (d) think about
29. Ochuko is naturally taciturn
(a) friendly (b) cheerful (c) garrulous (d) lively
30. The executive governor upheld the decision of the cabinet
(a) held up (b) abolished (c) undercut (d) reversed

Complete each of the following sentence by choosing the option that most suitably fills the space

31. I am sorry ____ to attend the meeting yesterday
(a) for failure (b) in falling (c) to having failed (d) for failing
32. It all ____ depended on what ____
(a) did he want (b) he wanted (c) does he want (d) did he want

33. My colleagues ____ before I arrived
(a) have been writing (b) started writing (c) wrote (d) had started writing
34. John reported to his manager that he ____ oversees
(a) has never been (b) had never been (c) never (d) is never
35. I started writing this test at 8:00am. It is 10:00am now by 11:00am, I ____ it for three hours
(a) shall be writing (b) have been writing (c) shall have been writing (d) am writing

Instruction: Read the passage below and answer the questions that follow: My good people, I come before you this week as a man whose honesty and integrity have been questioned. Now, the usual political thing to do when charges are leveled against you is either to ignore them without giving details or provide information. However before I answer any of your questions, let me state categorically that I have not touched a kobo of the N50,000 we contributed. Every kobo of it has been used in defraying political campaign expenses.

As a matter of fact, during one of my "meet with the press" conferences, Tony Agiwa accosted me and said, "honourable senator what about this fund we hear about?" I told him there was no secrete about the fund and that he should meet Abu O. Abu to get details of the fund. I told him, "you will find that the purpose of the fund was primarily to defray political expenses" in answers to another one question, I said that neither contributors to the fund, nor received any special consideration that he would not have received as an ordinary constituent. And I can say that never, since I became a senator, have I made a telephone call for them to an agency or have I gone down to an agency on their behalf. Records will show that that and these records are in the hands of the administrators.

36. Accosted in the passage means
(a) grossly insulted (b) greeted (c) fought with (d) forced
37. The author is
(a) exonerating himself from allegations of embezzlement (b) ignoring the allegations of embezzlement (c) Taking part in a political campaign (d) trying to implicate Abu O. Abu, a fellow politician.
38. Constituent in the passage means
(a) section of the constituency (b) his entire constituency (c) A supporter

- (d) A person having voting right where he lives
39. Abu O. Abu is portrayed as
 (a) a corrupt politician (b) the administrator of the fu (c) An ordinary tax paye (d) A government official

It appears that the N50,000

- (a) Has been spent
 (b) Has been paid into the government treasury
 (c) Will not be paid to government treasury
 (d) Will be used for future campaign

In each of the questions 41-45, choose the option nearest in meaning to the word or phrase underlined

41. All John's plans fell through
 (a) failed (b) were accomplished (c) were rejected (d) fell

42. The result of the experiment represents a break through in medical science
 (a) a colossal failure (b) a breaking point
 (c) catastrophe (d) an outstanding success

43. I have been able observe Ese at close quarter
 (a) in government houses nearby (b) within a short space of time (c) at close range
 (d) at regular intervals

44. Ovie spoke with his heart in his mouth
 (a) courageously
 (b) with such unusual cowardice
 (c) with a lot of confusion in his speech
 (d) with fright and agitation

45. From the way Shade talks, you can see that she is such a bore
 (a) uninteresting (b) brilliant
 (c) humorous (d) rude

In each of the question 46-50 select the option that best explains the information conveyed in the sentence

46. The manager said the new loaf is the last word in bakery
 (a) the loaf was the last in the baker's directory
 (b) the loaf was the best ever baked
 (c) the loaf was the last to be baked
 (d) the loaf was the worst to be basked

47. The horizon may not be clear now but the trouble spots have certainly been noted

- (a) the horizon dependent on the trouble spots
 (b) clarity of the horizon is dependent on the perception of the troubled spots
 (c) the troubled spots are more perceptible than the horizon.
 (d) The trouble spot of the horizon have not been noted

48. The events of last Friday show that there have been no love lost between the principal and the vice principal
 (a) They dislike one another (b) They dislike one another (c) They work independently (d) They cannot part company

49. Ovie's account with the commercial bank is in red
 (a) Ovie's account written re (b) Ovie's account is in dange (c) Ovie's account is overdrawn
 (d) Ovie's account is special

50. People may not pick flowers in the park
 (a) people can pick flowers in the park
 (b) People are prohibited from picking flowers in the park.
 (c) People may not wish to pick flowers from the park
 (d) People can not pick flowers from the park

51. Evaluate $\int_0^{\pi} \cos x \, dx$
 (a) 1 (b) (c) 2 (d) π

52. The geometric mean of 4 and 9
 (a) 13 (b) 5 (c) 36 (d) 6

53. The sides of a right angled triangle is xcm, (x-1)cm and (x-2)cm. find x
 (a) 5 (b) 6 (c) 3 (d) 9

54. Factorise $x^3 - 1$
 (a) $(x-1)^3$ (b) $(x-1)(-1)(x-1)$ (c) $3(x-1)$ (d) $(x-1)(x^2 - x - 1)$

55. Given that $\log_5 2 = 0.431$ and $\log_5 3 = 0.682$, the value of $\log_5 \frac{3}{8} - 2\log_5 \frac{4}{5} \log_5 \frac{2}{5}$ is
 (a) -1.271 (b) -0.318 (c) -2.104 (d) -0.011

56. Evaluate $(625)^{-1/4}$
 (a) 3/11 (b) 1/7 (c) 1/5 (d) 9/10

57. Find the universal set $U = \{-3 < x \leq 4\}$ and its subset $A = \{-1, 1, 2\}$ $B = \{x: 1 \leq x \leq 3\}$ Find $A \cap B$
 (a) $\{-1, 3\}$ (b) $\{-3, -2, 1\}$ (c) $\{-1, 0, 3, 4\}$ (d) $\{1, 2\}$

58. The area of a triangle of sides 5cm, 6cm and 7cm is
 (a) $6\sqrt{6} \text{cm}^2$ (b) 120cm^2 (c) $2\sqrt{11} \text{cm}^2$ (d) $4\sqrt{7} \text{cm}^2$

59. The perpendicular distance of a chord from the centre of a circle of radius 10cm is 6cm. find the length of the cord.
(a) 16cm (b) 26cm (c) 9cm (d) 32cm
60. At what point does the curve $x^2 - 3x + 2$ cut the line $y = 0$
(a) $x = 2, x = 1$ (b) $x = -1, x = -2$ (c) $x = -2, x = 1$
(d) $x = 2, x = -1$
61. Simplify $2^{-3} \times 16^{3/4}$
(a) 8 (b) 2 (c) 4 (d) 1
62. If x varies directly as \sqrt{y} and $x = \sqrt{9}$ when $y = 9$, then the value of x when $y = 17/9$ is
(a) 9 (b) 4 (c) 16 (d) 21
63. Ann walks for 5m from a point A to a point B northwards. From B, she walks eastwards to a point C on the bearing 030° . how far is she from B?
(a) $5\sqrt{3}/3$ m (b) $3\sqrt{5}/2$ m (c) $5\sqrt{3}/2$ m (d) $\sqrt{5}$ m
64. A machine gun with a mass of 60kg fires a 0.2kg bullet at a speed of 200m/s. what is the recoiling speed of the machine gun?
(a) 0.5m/s (b) 1.0m/s (c) 1.5m/s (d) 2.0m/s
65. Which of the following is an instrument for measuring temperature?
(a) liquid in glass thermometer (b) constant volume gas thermomete (c) thermoelectric thermometer (d) All of these
66. How far from a tall wall should a girl stand in order hear the echo of her clap two second later (speed of sound in air equal 330/s)?
(a) 130cm (b) 165cm (c) 210cm (d) 330m
67. Which of the following order is essential for the eclipse of the moon to occur?
(a) sun-earth-moon (b) sun-moon-earth
(c) moon-sun-earth (d) none of these
68. Impulse is equal to ____
(a) momentum
(b) change in momentum
(c) change in momentum per unit time
(d) change in momentum per unit mass
69. A 800kg car moving at 80km/hr overtakes a 1200kg car moving at 40km/hr in the same direction. If the two cars stick together, the wreckage has an initial speed of
(a) 8km/h (b) 40km/h (c) 56km/h (d) 60km/h
70. The law which states that the volume of a given mass of gas increases linearly with temperature provided the pressure of the gas remain constant referred to as
(a) Boyle's law (b) Charle's law (c) Pressure law (d) Ideal law
71. A copper block has heat capacity of 681J/K. what is the mass of the block given that the specific heat capacity of copper is 400J/kgK
(a) 0.07kg (b) 0.17kg (c) 0.76kg (d) 0.97kg
72. Two resistance joined in parallel produced a resultant of $6/5$ ohm. One of the resistance wires is broken and the effective resistance beomes 2ohm. The resistance of the wire that got broken is ____
(a) 2ohm (b) 3 ohm (c) $3/5$ ohm (d) $6/5$ ohm
73. An electrolytic capacitor has a capacitance of 0.005F. what is the charge on the plate if it is charged to a potential of 240V.
(a) 4.8C (b) 3.6C (c) 2.4C (d) 1.2C
74. Which of the following is NOT a scalar quantity?
(a) mass (b) volume (c) weight (d) current
75. A car travels 10km due east on a straight road and then 15km due north before finally coming to rest. What is the resultant displacement of the car?
(a) 5km (b) 12.5km (c) 18km (d) 25km
76. Which of the following metals will show the highest metallic character?
(a) calcium (b) barium (c) copper (d) zinc
77. The oxidation state of Cr in $K_2Cr_2O_7$ is
(a) +7 (b) +6 (c) +5 (d) +4
78. The ores that can be concentrated by flotation are
(a) nitride ores (b) sulphide ores (c) oxide ores (d) chloride ores
79. When temporary hard water is boiled for some time in a kettle, the inner surface of the kettle becomes citrated with a deposit
(a) calcium tetraoxosulphate (VI) (b) Calcium tri carbonate (IV) (c) Calcium hydrogentrioxocarbonate (IV) (d) Aluminum trioxocarbonate (IV)
80. Which of the following is used to hasten the ripening of fruits?
(a) Ethene (b) ethanol (c) ethyne (d) ethane
81. The maximum number of electrons in the L-shell of an atom is
(a) 2 (b) 8 (c) 18 (d) 32
82. A solid substance with high melting and bailing points is likely to be a/an

(a) covalent compound (b) dative covalent compound (c) electrovalent compound (d) non-metal

83. The advantage of detergent over soap is that detergent
(a) are readily available (b) are in powered for (c) are non-biodegradable (d) lather readily with water
- Which of the following metals is purified commercially by electrolysis?
(a) Zn (b) Fe (c) Sn (d) Cu
85. The partial pressure of oxygen in a sample of air is 452mmHg and the total pressure is 780mmHg. What is the mole fraction oxygen?
(a) 0.203 (b) 0.579 (c) 2.030 (d) 5.790
86. The component of air that can be removed by alkaline pyrogallol solution is
(a) oxygen (b) nitrogen
(c) carbon(IV) oxide (d) noble gases
87. What quantity of aluminum is deposited when a current of 10A is passed through a solution of an aluminum salt for 1930s? (Al = 27, F= 96,500Cmol⁻¹)
(a) 0.2g (b) 1.8g (c) 5.8g (d) 14.2g
88. The mixture of gases used in photographer's flash tube is
(a) argon and krypton (b) targon and xenon (c) krypton and xenon (d) Helium and argon
89. A carbohydrate molecule in the right ventricle of the heart is pumped into the cell of the toe of main. Which of these structure is it unlikely to pass through enroute?
(a) pulmonary artery (b) lungs (c) heart (d) aorta
90. A dry indehiscent winged fruit formed from one carpel is known as a
(a) Schizocarp (b) caryopsis (c) samara (d) follicle
91. The anatomical evidence usually used in support of the evolutionary relationship among whales, human, birds and dogs is the possession of
(a) thick skin (b) tail (c) epidermal structures (d) pentadactyl
92. The number of plant species obtained from a population study of a garden is as follows: Guinea grass (15), Ipomea spp (5), sida spp (7) and imperata spp (23). What is the percentage of occurrence of imperata spp.
(a) 35% (b) 16% (c) 46% (d) 23%

93. A bee caste consist of
(a) soldier and queen (b) drones, soldiers and workers (c) queen, workers and soldiers (d) queen, drones and workers
94. Which of the following organisms can be found in forest water habitat?
(a) sargassum and dogfish
(b) red mangrove and pond water
(c) sargassum and red mangrove
(d) spirogyra and pond skater
95. Oxygen from the atmosphere reaches the mammalian blood stream through one of the paths indicated below. Indicate the correct apt A = mouth b = trachea c = bronchioles d= nostrils e = broncos f= alveoli
(a) a→ b→e→f→d (b) b→d→f→e→c
(c) d→b→e→c→f (d) f→e→c→d→c
96. The physical factors are represented by
(a) 1,5,6 (b) 4,5,6 (c) 5,7,8 (d) 6,7,8
97. Density-dependent factors that operate to regulate a population size may include the following except
(a) Shortage of food suppl (b) fire outbreak (c) spread of diseases (d) increased competition
98. Food scarcity can cause sudden decrease in population size by the following except by
(a) degreasing the reproductive rate (b) bring about immigration (c) raising mortality rate (d) minimizing rate of competition
99. Which of the following is correct about the transverse section of a vein when compared with that an artery?
(a) The lumen of a vein is wider than that of an artery
(b) the endothelium of the vein is thinner than that of artery
(c) there are more smooth muscles in vein than in artery
(d) there are valves in veins not present in artery
100. A photometer was used to compare the rate of loss of the same volume of water from a plant under different environmental conditions namely: under a fan, at the sea shore, under the sun; in the airy laboratory and in a cupboard. Which of the reading below was likely to have been obtained in a cupboard?
(a) 15secs (b) 30secs (c) 25secs (d) 20 secs

DELSU POST UTME SCREENING EXERCISE

PAST QUESTIONS

FOR

2010/ 2011 AFTERNOON

SURNAME (Capital Letters) _____

OTHER NAMES _____

JAMB REGISTRATION NUMBER _____

PROPOSED FACULTY _____

PROPOSED DEPARTMENT _____

QUESTION PAPER CODE: **9:001:A**

TIME: 1 HOUR

- 1. DO NOT OPEN THE QUESTION PAPER UNTIL YOU ARE ASKED TO DO SO**
- 2. ANSWER SHEETS MUST NOT BE TAKEN OUT OF THE EXAMINATION HALL**
- 3. DO NOT DETACH LEAFLETS**
- 4. SHADE THE CORRECT ANSWER IN EACH QUESTION**

**SCIENCE , SCIENCE EDUCATION, ENGINEERING, AGRIC.
SCIENCE, COLLAGE OF HEALTH SCIENCE AND DIRECT ENTRY**

ALL PROGRAMMES

2010/ 2011 [AFTERNOON] DELSU POST UTME QUESTIONS FOR SCIENCES, HEALTH SCIENCES, ENGINEERING, AGRIC. SCIENCES, SCIENCES EDII. AND DIRECT ENTRY

OPTION D

ENGLISH LANGUAGE 2010/2011 SCIENCES AFTERNOON

In questions 1-7 choose the option nearest in meaning to the word(s) or phrase(s) in italics (underlined)

All the accident victims are bleeding profusely

(a) thorough (b) perfectibility (c) complete (d) practicability

2. The prosecutor was accused of obstructing justice
(a) hindering (b) retarding (c) impending (d) interrupting

3. The man preaches egalitarianism without matching it up with action
(a) salvation (b) equality (c) kindness (d) dedication

4. It was surprising how we took to the stranger at once
(a) talked so long with (b) introduced ourselves
(c) formed a liking for (d) started fighting

5. Surely, Toritseju is a ball of fire
(a) a quarrelsome person (b) a hot-hearted activist
(c) a fiery speaker or writer (d) a very energetic person

6. It would need a high flyer to make a first class degree in university
(a) a smart performer (b) an outright genius
(c) an outstanding scholar (d) an unmitigated swot

7. Hers was a chequered career
(a) an interesting and successful career (b) a career full of sorrow and fears
(c) a bright and memorable career (d) a career full of ups and downs

in each of the questions 8-11 choose the option nearest in meaning to the word(s) or phrases in italics (underlined).

8. The police ran the criminal to earth
(a) jailed (b) knocked him down
(c) discovered him (d) buried him

9. The college was worried by Ejiro's garrulous tendencies
A reticent C. quarrel some
B. Loquacious D Outspoken

10. The economic situation is responsible for the recent discord in many families
(a) division (b) resourcefulness (c) harmony (d) suffering

11. The awareness of mortality has imposed some restraint on man's excesses
(a) celestially (b) eternity (c) continuity (d) inexistence

Read the passage below and answer the question that follow:

You should that the common cold should be easy enough to stud, but it is not so easy as it looks. colds often seem to spread from one person to another, so it is often assumed that the cold must be infectious, but there are some puzzling observations which do not fit in with this theory. an investigator in Holland examined some eight thousand volunteers from different areas and came to the conclusion that in each group the colds all appeared at the same time- transfer of infection from case to case could not account for that. Yet at the common cold research institute in Salisbury the infection theory has been tested out, two series of about two hundred people each were inoculated one with salt water and the other with secretions from known cold victims. only one of the salt-water group got a cold compared with seventy three in the other group.

In the British Medical Journal, there was a report of a meeting "the common cold-fact and fancy" at which one of the speakers reported a study of colds made in Cirencester over the last five years. three hundred and fifty volunteers had kept diary records of their colds and on an average each had seven every year, with an annual morbidity of seventy days. so, nearly one-fifth of our lives is spent in more less misery coughing and sneezing. Some widely held beliefs about the common cold have turned out not to be true. it seems that old people are just as liable to colds as the young. sailors in isolated weather ships have just as many colds while on board and not in contact with the outside world as when on shore.

12. Which of the following statements can be implied from the passage?

(a) people catch colds equally in warm and cold weather (b) people catch more colds in water (c) people catch more colds in warm weather (d) the origin of colds is inconclusive

13. According to the writer, some widely held beliefs about the common colds are

(a) inconclusive (b) fallacious (c) inevitable (d) societal

14. The -cirencester volunteers kept a record of their colds through

- (a) the British Medical Journal
 (b) personal diaries
 (c) morbidity rates (d) temperature recordings
15. A rare disease can be more easily dealt with than the common cold because
 (a) medical experts are fed up with the rampant cases of common cold
 (b) Common colds are easily not the province of the orthodox medical expert
 (c) People easily develop resistance to the common colds
 (d) adequate research exists to uncover facts about such rare disease.

16. From the information in the passage, there is evidence
 (a) that old people are immune against the common cold
 (b) against the theory that the common cold is infectious
 (c) for the theory that common cold is indeed infectious
 (d) that medical reports are silent on facts about common colds

In each questions 17-19 fill each gap with the most appropriate option from the list following the gap.

17. You think she hasn't got any friends? of course she's got _____
 (a) many more (b) quit much (c) quite a few (d) few
18. The carpenter asked for ten packets of _____ nails
 (a) fifteen-centimetre (b) fifteen-centremetres
 (c) fifteen-centmeter (d) fiftgeen-centemeters
19. My brother got married to a woman with _____ manner
 (a) gorgeous (b) exquisite (c) decent (d) attractive

In each of questions 20-25, choose the option opposite in meaning to the word in italics (underlined).

20. The flock suddenly became restive after mid-day.
 (a) quiet (b) submissive (c) disorderly (d) fidgety
21. Edesiri's aberrant behaviour attracted attention
 (a) rascally (b) heady (c) normal (d) selfish
22. The judge always takes a hardline on such issues
 (a) complex stand (b) simple stand
 (c) uncompromising stand (d) difficult stand
23. That team has become quite indomitable quite recently.
 (a) incorrigible (b) disobedient
 (c) unconquerable (d) conquerable
24. Okoro is an amateur wrestler
 (a) skillful (b) good (c) professional (d) strong

25. The instructions on the examination paper are explicit
 (a) simple (b) detailed (c) ambiguous (d) definite

General Papers 2010 /2011

26. Oxyacetylene flame s used for iron-welding because it
 (a) evolves a lot of heat when burnt
 (b) dissociates to produce carbon(iv) oxide and oxygen
 (c) makes the iron metal solidify very quickly
 (d) combines with oxygen to give a pop sound.
27. The structural component that makes detergent dissolve more quickly in water than soap is
 (a) $-\text{SO}_4^-\text{Na}^+$ (b) $-\text{COO}^-\text{K}^+$ (c) $-\text{COO}^-\text{Na}^+$ (d) $-\text{SO}_3^-\text{Na}^+$
28. According to the kinetic theory an increase in temperature cause the kinetic energy of particles to
 (a) remain constant (b) be zero
 (c) increase (d) decrease
29. Chlorine gas is prepared in the laboratory by
 (a) dropping concentrated hydrochloric acid onto potassium tetraoxomanganate(vii) crystals
 (b) oxidizing concentrated hydrochloric acid using potassium heptaoxidichromate(vi) crystals
 (c) Adding concentrated tetraoxosulphate(vi) acid in solid sodium chloride
 (d) Adding concentrated hydrochloric acid to solid manganese(iv) oxide
30. A compound contains 40.0% carbon, 6.7% hydrogen and 53.3% oxygen, if the molar mass of the compound is 180. find the molecular formula. [H = 1, C= 12, O = 16]
 (a) $\text{C}_6\text{H}_6\text{O}_3$ (b) $\text{C}_6\text{H}_{11}\text{O}_6$ (c) $\text{C}_3\text{H}_6\text{O}_3$ (d) CH_2O
31. The type of bonding in $(\text{Cu}(\text{NH}_3)_4)^{2+}$ is
 (a) coordinate (b) electrovalent (c) metallic (d) covalent
32. Which of the following represents an aromatic compound
 (a) C_6H_{12} (b) $\text{C}_6\text{H}_5\text{OH}$ (c) C_6H_8 (d) $\text{C}_6\text{H}_9\text{OH}$
33. 3300cm^3 of a gas has a pressure of 800mmHg. If the pressure is reduced to 650mmHg. Find its volume.
 (a) 243.75cm^3 (b) 369.233cm^3
 (c) 738.46cm^3 (d) 1733.36cm^3
34. A dense white fume is formed when ammonia gas reacts with
 (a) $\text{H}_2(\text{g})$ (b) $\text{O}_2(\text{g})$ (c) $\text{HCl}(\text{g})$ (d) $\text{Cl}(\text{g})$
35. The enzyme responsible for converting sucrose into two simple isomeric sugar is

36. (a) invertase (b) amylase (c) lactase (d) maltase
Simplify $\log_2 8 + \log_2 14 - \log_2 7$
(a) $\log_2 15$ (b) $\log_2 4$ (c) 4 (d) 1
37. If x varies directly as y^2 and $x = 4$ when $y = 6$. Find the values of y when $x = 9$
(a) ± 336 (b) ± 9 (c) $1/9$ (d) 81
- Determine for what range of values of x the inequality $1/2x + 2 \geq 2x - 1$ is satisfied
(a) $x \geq 2$ (b) $x \leq 2$ (c) $x \leq 5$ (d) $x \geq 5$
39. If $dy/dx = e^x + \sin x + 22x$ find y
(a) $e^x + \cos x + x^2 + c$ (b) $e^x + \cos x - x^2 + c$ (c) $e^x - \cos x + x^2 + c$ (d) $e^x - \cos x - 2x^2 + c$
40. A regular polygon has 8 sides. Find the size of its interior angles.
(a) 45° (b) 90° (c) 135° (d) 1080°
41. Pure solvents are obtained by
(a) evaporation (b) extraction
(c) condensation (d) distillation
42. A given volume of methane diffuses in 20s. how long will it take the same volume of sulphur(iv) oxide to diffuse under the same conditions? [C= 12, H = 1, S= 32, O = 16]
(a) 40s (b) 60s (c) 20s (d) 5s
43. 25cm^3 of a 0.2moldm^{-3} solution of Na_2CO_3 requires 20cm^3 of a solution of HCl for neutralization. The concentration of the HCl solution
(a) 0.5moldm^{-3} (b) 0.6moldm^{-3}
(c) 0.2moldm^{-3} (d) 0.4moldm^{-3}
44. Multiply 0.0012 by 0.0408 leaving your answer in standard form.
(a) 4.896×10^{-6} (b) 4.896×10^6 (c) 4.896×10^5
(d) 4.896×10^3
45. The next two terms of the arithmetic progression 212, 201, 190, 179, -, -, are
(a) 168, 157 (b) 168, 156 (c) 157, 146 (d) 175, 164
46. Two of the interior angles of a polygon are 156° and 134° and each of the remaining interior angles is 151° . How many sides has the polygon.
(a) 5 (b) 10 (c) 12 (d) 16
47. A temperature of 50°C is ___ in the Fahrenheit scale
(a) 60°F (b) 122°F (c) 28°F (d) 90°F
48. The vacuum in the thermos flask prevent heat losses by (a) conduction and convection (b) radiation only (c) convection and radiation (d) conduction only
49. Anomalous expansion of water occurs at
(a) 0°C (b) 4°C (c) 10°C (d) 100°C
50. A small object is placed 60cm in from of a diverging (concave) lens of focal length 20cm. calculate the position of the image formed and what is the nature of the image?
(a) 15cm and virtual (b) 30cm and real (c) 15cm and real (d) 30cm and virtual
51. Factorise $75p^2x^2 - 48y^2$
(a) $3(5px - 4y)(5px + 4y)$ (b) $3(5px - 4y)(5px + 4y)$
(c) $9(5px - 4y)^2$ (d) $3(5px + 4y)^2$
52. The sum of the roots of the equation is
(a) -16 (b) -6 (c) (d) 18
53. Given the universal set $U = \{1, 2, 3, \dots, 10\}$ and sets, $P = \{x: x \text{ is odd}\}$ & $Q = \{x: x \text{ is prime}\}$
list the elements of $P \cap Q$,
(a) {9} (b) {1, 9} (c) {1, 3, 9} (d) {2, 4, 6, 8}
54. P is a point on the bearing 342° from a point Q. what is the bearing of Q from P?
(a) 162° (b) 198° (c) 252° (d) 342°
55. Which of the following represents an inverse variation?
(a) $y = 2x^2$ (b) $y = -4x$ (c) $y = 1/2x$ (d) $y = 4/x$
56. Which of these is/are rechargeable?
(i) cadmium indium cell (ii) Leclanche cell (iii) lead acid accumulator
(a) i and ii (b) ii and iii (c) ii only (d) i and iii
57. The energy stored in an inductor of 5mH when a current of 6A flows through it is
(a) $1.8 \times 10^2\text{J}$ (b) $9.0 \times 10^{-2}\text{J}$ (c) $9.0 \times 10^{-3}\text{J}$ (d) $1.4 \times 10^{-2}\text{J}$
58. The sum of all currents flowing into a junction is equal to the sum of the currents flowing out. this is
(a) Ohms law (b) Faraday's law
(c) Kirchhoff's law (d) Bragg's law
59. Continuity of an ecosystem depending on constant flow of energy and circulation of matter. however, the amount of energy passed on from decomposers to producers should be
(a) great (b) small (c) reversible (d) zero
60. A stable self sustaining environment produced by an interaction between biotic and abiotic component community © an ecosystem (d) a habitat
A 3,600M B 0.025 C 40M D 1230m/s
61. If a wave traveling with a velocity of 1200m/s has a frequency of 30Hz, its wavelength is
(a) 3600m (b) 0.025m (c) 40m (d) 1230m/s
62. Two plane mirrors inclined at 30° will produce ___ images
(a) 3 (b) 5 (c) 11 (d) 12

63. A ray makes an angle of incidence of 30° as it travels from air to glass of refractive index 1.5. The angle of refraction is
(b) 48.6° (c) 45° (d) 50°
64. A 20N force moves through a displacement of 300m in 10 minutes. its power is
(a) 600watts (b) 100watts (c) 1500watts (d) 150watts
65. Which of these has the greatest penetrating power
(a) gamma (b) x-rays (c) Beta (d) Alpha
66. A mixture of mercurous and mercuric nitrate is added to a food substance and a white precipitate is formed and when heated gently turns red. the food substance is
(a) protein (b) oil (c) carbohydrate (d) fat
67. Starting from one skull end, the vertebrates are arranged in the following order
(a) axis, atlas, cervical, thoracic and lumbar
(b) atlas, cervical, axis, thoracic and lumbar
(c) atlas, axis, thoracic, cervical and lumbar
(d) atlas, axis, cervical, thoracic and lumbar
68. Which of the following represents the sequence of protein hydrolysis? 1-polypeptide 2-amino acids 3-proteins 4-peptones
(a) 3'1'1'2'4 (b) 3'1'2'4'1'1 (c) 3'1'4'1'2'1'1 (d) 3'1'4'1'1'2
69. Which is the most important adaptation of a bony fish to life in water?
(a) The possession of a stream lined shape
(b) the presence of overlapping scales
(c) The covering of the body by a film of slime
(d) the possession of a caudal fin
70. Double fertilization in higher plants is significant because it ensure that
(a) formation of a fertile embryo
(b) formation of a fertile embryo and the endosperm
(c) development of the seed
(d) development of the fruit
71. A density dependent factor that to regulate a population size may include the following.
(a) shortage of food supply (b) fire outbreak
(c) spread of disease
(d) increase competition
72. In the life history of schistosoma (bilharzia) one of the following is the intermediate host
(a) man (b) snail (c) mosquito (d) crayfish
73. A human gland secretes two hormones, one of which causes a disease called diabetes if deficient in the body. which organ procures the hormone
(a) spleen (b) parathyroid (c) adrenal body
(d) pancreas

74. A married couple have 10 children and they are all girls. which of the following is the correct explanation? (a) the woman is incapable of producing male children
(b) the man's sperms are very weak
(c) the x components of the man's sex chromosome was always involved
(d) the male is not athletic enough
75. If a 26 year old blind man married a young one-eyed woman and they had four children, how many of them would be blind like their father?
(a) all (b) 5 (c) 2 (d) none

Aptitude Test

Identify the relationship between the word group in the question. Shade the answer which fits best with the group in question 76 and 77

76. Throw, volley, string
(a) hurl (b) grab (c) seize (d) catch
77. Bourbon, whisky, gin
(a) bear (b) vodka (c) linen (d) fur
78. A train traveling at 60mph enters a tunnel that is 5 miles long. the train is one mile long. how many minutes does it take for the whole train to pass through the tunnel?
(a) 7 (b) 4 (c) 10 (d) 5
79. The cost of manufacturing tractors in Ghana is twenty percent less than the cost of manufacturing tractors in Nigeria. Even after transportation fees and import taxes are added, it is still cheaper to import tractors from Korea to Nigeria than to produce tractors in Nigeria. which of the following assertions is best supported by this information?
(a) Labour costs in Ghana are twenty percent below those in Nigeria
(b) importing tractors into Nigeria will eliminate twenty percent of the manufacturing jobs in Nigeria (c) The cost of transporting a tractor from Ghana to Nigeria is more than twenty percent of the cost of manufacturing the tractor in Ghana.
(d) The import taxes on a tractor imported from Ghana to Nigeria is less than twenty percent of the cost of manufacturing the tractor in Nigeria.
80. There are two valves at the bottom of a water tank which allow the tank to be drained. if both valves are opened, how long will it take before the tank is empty.
statement 1 – If only valve 1 is opened, the tank will be empty in 10 minutes
statement 2 – If only valve 2 is opened, the tank will be empty in 20 minutes.
(a) statement 1 alone is sufficient, but statement 2 alone is not sufficient

- (b) Statement 2 alone is sufficient, but statement 1 alone is not sufficient
 (c) Both statements together are sufficient, but neither statement alone is sufficient
 (d) Each statement alone is sufficient
31. Of the teams competing in the world archery championships, twenty percent are from Europe, half as many are from the United States and one twentieth are from Africa. What fraction of teams are from neither Europe, the US or Africa
 (a) $13/20$ (b) $15/20$ (c) $13/15$ (d) $17/20$
82. In the fraction $3/x$, x may not be substituted by which of the following sets?
 (a) {1,2,4} (b) {-22,-3,-4} (c) {1,3,7} (d) {0,10,20}
83. Jim has 5 pieces of string. he needs to choose the piece that will be able to go around his 36-inch waist. his belt broke, and his pants are falling down. the piece needs to be at least 4 inches longer than his waist so he can tie a knot in it, but it cannot be more than 6 inches longer so that the ends will not show from under his shirt. which of the following pieces of string will work the best?
84. The last week of a month a car dealership sold 12 cars. a new sales promotion came out the first week of the next month and the sold 19 cars that week. what was the percent increase in sales from the last week of the previous month compared to the first week of the next month?
 (a) 58% (b) 119% (c) 158% (d) 175%
85. Select the answer choice that identifies the noun in the sentence. the works of many great poets, have been placed on reserve
 (a) many (b) great (c) placed (d) reserve
86. If the operation, is defined by the equation $xy = 2x + y$, what is the value of a in $2a = a^3$
 (a) 0 (b) 1 (c) -1 (d) 4
87. There are 2200 questions on a 3 hr examination. among these questions are 50 mathematics problems. it is suggested that twice as much time be spent on each maths problem as for each other question. how many minutes should be spent on mathematics problems?
 (a) 36 (b) 72 (c) 60 (d) 100
88. In a group of 15, 7 have studied Latin, 8 have studied Greek, and 3 have not studied either. how many of these studied both Latin and Greek.
 (a) 0 (b) 3 (c) 4 (d) 5
89. If a and b are positive integers and $(a-b)/3.5 = 4/7$ then
 (a) $b < a$ (b) $b > a$ (c) $b = a$ (d) $b > -a$
90. A company contracts to paint 3 houses. Mr. Brown can paint a house in 6 days while Mr. Black would take 8 days and Mr. Blue 12 days. after 8 days Mr. Brown goes on vacation and Mr. Black begins to work for a period of 6 days. How many days will it take Mr. Blue to complete the contract?
 (a) 7 (b) 8 (c) 11 (d) 12
91. Which of the following numbers could be described in the following way: an integer that is a natural, rational and whole number?
 (a) 0 (b) 1 (c) 2.33 (d) -3
92. There are two circle, one circle is inscribed and another circle is circumscribed over a square. what is the ratio of area of inner to outer circle?
 (a) 1:2 (b) 3:4 (c) 2:1 (d) 5:6
93. Mr. and Mrs. Aye and Mr. and Mrs. Bee competed in a chess tournament. Of the three games played:
 (i) in only the first game were the two players married to each other
 (ii) the men won two games and the women won one game
 (iii) the Ayes won more games than the Bees
 (iv) anyone who lost a game did not play the subsequent game
 Who did not lose a game?
 (a) Mrs. Bee (b) Mr. Bee (c) Mr. Aye (d) Mrs. Aye
94. Three piles of chips- pile I consists one chip, pile II consist of chips and pile III consists of three chips - are to be used in game played by Anita and Brinda. The game requires
 (i) that each player in

DELSU POST UTME SCREENING EXERCISE

PAST QUESTIONS

FOR 2010/2011 MORNING

SURNAME (Capital Letters) _____

OTHER NAMES _____

JAMB REGISTRATION NUMBER _____

PROPOSED FACULTY _____

PROPOSED DEPARTMENT _____

QUESTION PAPER CODE: **9:001:A**

TIME: 1 HOUR

- 1. DO NOT OPEN THE QUESTION PAPER UNTIL YOU ARE ASKED TO DO SO**
- 2. ANSWER SHEETS MUST NOT BE TAKEN OUT OF THE EXAMINATION HALL**
- 3. DO NOT DETACH LEAFLETS**
- 4. SHADE THE CORRECT ANSWER IN EACH QUESTION**

SCIENCE , SCIENCE EDUCATION, ENGINEERING, AGRIC.
SCIENCE, COLLAGE OF HEALTH SCIENCE AND DIRECT ENTRY

ALL PROGRAMMES

ENGLISH

Read the passage below and answer the questions that follow:

In times past in Nigeria, being a secretary was perceived with utter disdain by many people. Other professionals such as teachers, lawyers, engineers, surveyors, estate officers and architects were revered. Many issues readily come to mind concerning the old perspective of secretaries as professionals.

One they were regarding as people. With little or no education. Indeed, many of them were said to be mere typists who learnt how to punch keys on the typewriters. They hardly had any formal education but obtained doubtful certificates. This were made possible because anyone could easily learn to be a typist under the shade of a tree or in a personal office of a retired secretary or a chief typist from any business organisation. As long as a short piece of work could be typed almost accurately and in record time, one then became a secretary. This unrealistic practice to call an unqualified person a secretary might have been introduced and sustained by people who did not know who a secretary was. The educated secretaries obtained a minimum of the Ordinary National Diploma (OND) or its equivalent from institutions in and outside Nigeria particularly Great Britain, Canada or United States of America. Two, they were mostly women and very few male secretaries who suffered more humiliation than their female counterparts. They were regardless as men who did not succeed in life and did the work that normally women were supposed to do.

Three and deriving from the second reason; secretaries were, as a matter of fact, very close to their bosses. Most people, including husbands of secretaries regarded such a mode of interaction as tempting a kind of constant closeness which might engender a deliberate or unintentional amorous relationship between superior and subordinate office.

1. Which of the following statements can be deduced from the passage concerning the old perspective of secretaries?
 - a. They were highly respected by other professionals
 - b. they did not deserve to be addressed as secretaries
 - c. the training they received from retired professionals was sufficient
 - d. one could see that they were well educated
2. The writer seems to suggest that
 - a. the ordinary National Diploma was sufficient for secretaries

- b. only graduates who studied abroad were good secretaries
- c. there was nothing wrong in having males is secretaries
- d. secretaries were best trained by retired Chief typists

3. Modern secretaries are different from the old ones because they:
 - a. an use modern gadgets such as computer, and other machines
 - b. are able to become graduates of various universities
 - c. may become teachers in polytechnics and universities
 - d. are more educated and better exposed to professional training.
4. The expression amorous relationship as used in the passage means
 - a. related as professional
 - b. amateur relationship
 - c. sexual relationship
 - d. academic relationship
5. The expression utter disdain in the passage means
 - a. complete contempt
 - b. deserved respect
 - c. professional misconduct
 - d. undue criticism

In question 6-10 choose the option nearest in meaning to the word(s) or phrase(s) in italic

6. Travelling in the night can be an ordeal
 - a. a great exercise
 - b. a great fear
 - c. a great endurance
 - d. a great suffering
7. The confused student found himself in a spot
 - a. in a particular place
 - b. in a normal situation
 - c. in a pleasant situation
 - d. in a difficult situation
8. Our local paper is noted for its incisive editorials.
 - a. sarcastic
 - b. penetrating
 - c. decisive
 - d. destructive
9. He is bound to expose himself by his nefarious activities.
 - a. kind
 - b. disreputable
 - c. despicable
 - d. nocturnal
10. The Island became more enhancing at night.
 - a. attractive
 - b. delightful
 - c. accommodating
 - d. lively

for each of question 11-15 choose option opposition in meaning to word in italics(underlined)

11. Since mortality is the lot of argued the preacher, we must accept death with equanimity
 - a. concern
 - b. uncertain
 - c. serenity
 - d. anxiety

12. You can use lethal means necessary to stop dangerous character from molesting innocent citizens
a. fatal b. cruel c. harmless d. soft
13. The undesirable elements who perpetuate these vices are newly detected.
a. aggravate b. overlooked
c. unconcerned d. encourage
14. There is much indifferent in behaviour.
a. concern b. ignorant
c. unconcerned d. inconsistency
15. The man found his woman physically repellent
a. attractive b. fatuous c. Unpleasant d. flamboyant

In each of the question 16-20 choose option nearest in meaning to word(s) or phrase(s) in italics (underlined)

16. We were at a loss to understand Edesiri should retract his statement before the judge
a. assert b. repeat c. withdraw d. reiterate
17. Your effort to bring peace between us is futile because you are biased
a. convinced b. clever c. prejudiced d. worried
18. His embroidery was an exacting task for a tailor
a. easy b. tasking c. interesting d. beautiful
19. I had to make my way through the thong of people in the church.
a. group b. crowd c. gathering d. theme
20. You're impossible she said to me
a. unreasonable b. unforgiving c. Daft d. strong

In each of question 21-25 fill each gap with the most appropriate option from the list following the gap

21. I washearing distance of the speaker
a. on b. at c. within d. in
22. My wife and I were to celebrate our silver wedding anniversary last Sunday. Unfortunately on thatday my father-in-law died mysteriously
a. fruitless b. faithful c. futile d. fateful
23. The ceremony was rounded -.....very late
a. up b. off c. of d. out
24. The.... Affairs Officer is expecting all of us in the dining room.
a. student b. students c. student's d. students'
25. My boss is usually a charming man but he can be very irritable
a. atimes b.at times c. those times d. with times

GENERAL PAPER

26. How long will it take a body moving with an initial velocity of 15m/s to increase its velocity to 45m/s if it accelerates at 2m/s²?
a. 30 secs b. 9 secs c. 25 secs d. 15 secs
27. Which of these best defines "resistivity" of a wire
a. resistance per unit length b. resistance of a given area, per unit length c. resistance of a given length per unit area
d. resistance per unit area
28. One horse power engine produces
a. 200watt b. 476 watts c. 1000watts d. 746watts
29. Short sightedness is corrected by the use of
a. diverging mirror b. converging lens
c. converging mirror d. diverging
30. If a wave travelling with a velocity of 1200m/s has a frequency of 30Hz, its wavelength is
a. 3,600m b. 0.025m c. 40m d. 1230m/s
31. An inductance coil of 0.8 Henry is connected to a circuit with alternating AC source of 50Hz. The reactance of the coil is
a. 80 ohms b. 251.4ohms c. 40 ohms d. 40×10^{-3} ohms
32. An appliance rated 220Vrms can with stand voltage values up to.
a. 440V b. 1000V c. 311V d. 660V
33. A transformer with 600 turns of coil in the primary arm and 30 turns of secondary coil carries a current of 0.65A in the primary arm. The current in the secondary coil is.
a. 0.033Amp b. 20Amp c. 5Amp d. 13 Amp
34. Lightening conductor function effectively because
a. charges settle at the tip of body
b. the atmosphere is big
c. It is connected to high tension source d. It points to the North
35. A temperature of 78°C in Kelvin scale will be
a. 108.4k b. 351k c. 140.4k d. 195k
36. The reactance of capacitor whose capacitance is 6µf is a circuit with 50Hz alternating effect is
a. 2.512×10^3 ohms b. 4×10^4 ohms c. 4×10^{10} ohms d. 2.5×10^{-3}
37. The angle between the plane mirrors in a kaleidoscope is usually
a. 90° b. 45° c. 60° d. 0°
38. Convert 42 base 5 to a number in base 3
a. 222 base 3 b. 211 base 3
c. 210 base 3 d. 112 base 3

39. A boy spends $\frac{1}{3}$ of his pocket money on books and $\frac{1}{4}$ on a pair of shorts. What fraction of his pocket money is left?
a. $\frac{7}{12}$ b. $\frac{5}{12}$ c. $\frac{5}{6}$ d. $\frac{1}{2}$
40. Simplify $7\frac{1}{2} - (1\frac{1}{2} + 2) \div \frac{1}{2}$
a. 8 b. 4 c. $-\frac{1}{2}$ d. $\frac{1}{4}$
- A man borrowed Np at simple interest for 4 years at 3% and paid an interest of N240. What is the value of P?
a. 2000 b. 24000 c. 2880 d. 24000
- Given that $\tan x = \frac{1}{\sqrt{2}}$ find $\sin x + \cos x$
a. $2\sqrt{2}$ b. $\frac{1}{2}\sqrt{2}$ c. 2 d. $\sqrt{2}$
43. Write down the quadratic equation whose roots are p and -2p
a. $x^2 - px - 2p^2 = 0$ b. $x^2 + px + 2p^2 = 0$
c. $x^2 + px + 2p^2 = 0$ d. $x^2 + 2px - p^2 = 0$
- Solve the equation $1 - \frac{1}{2} = 2\frac{1}{2} - 2$
a. $1\frac{3}{2}$ b. $-\frac{1}{2}$ c. $\frac{1}{5}$ d. $\frac{3}{7}$
45. If a number is selected at random from the set what is the probability that is prime?
a. $\frac{1}{6}$ b. $\frac{4}{7}$ c. $\frac{2}{3}$ d. $\frac{1}{2}$
46. If and find the value of
a. 14 b. 21 c. 32 d. 39
47. In a group of 30 students n of them are boys. If a student is selected at random, what is the probability that it is a girl?
a. $\frac{30-n}{30}$ b. $\frac{10+n}{30}$ c. $\frac{n}{30}$ d. $\frac{20}{30}$
48. Find the value of y if
a. b. c. d. 2
49. Find the value of the definite integral
A 4. b. 18 c. 0 d. 9
50. Each exterior angle of a regular polygon is 72° . How many sides does it have?
a. 14 b. 9 c. 7 d. 5
51. The percentage of water of crystallisation in $\text{ZnSO}_4 \cdot 7\text{H}_2\text{O}$ is ____
(Zn = 65, S = 32, O, 16, H = 1)
a. 33% b. 44% c. 55% d. 87%
52. The soft solder used for welding and plumbing is an alloy of
a. lead and zinc b. Iron and zincc. Iron and tin
d. lead and tin
53. 16.8g of sodium hydrogen trioxocarbonate (IV) is completely decomposed by heat. Calculate the volume of carbon(IV) oxide given off at s.t.p
a. 22.40dm^3 b. 11.20dm^3 c. 2.24dm^3
d. 1.12dm^3 (Na = 23, C = 12, O = 16, H = 1, molar volume of a gas at s.t.p)
54. Nigerian crude oil is described as light crude because of its
a. low sulphur content b. high natural gas content
c. high octane number d. low aliphatic hydrocarbon content
55. Which of the following acts as both a reducing and an oxidizing agent?
a. H_2S b. CO_2 c. H_2 d. SO_2
56. If a solution contains 4.9g of tetraoxosulphate (VI) acid, calculate the amount of copper (II) oxide that will react with it. (Cu = 64, O = 16, S = 32, H = 1)
a. 40.0g b. 80.0g c. 0.8g d. 4.0g
57. What mass K_2CrO_4 is required to prepare 250cm³ of 0.020mol dm⁻³ solution
a. 97.10g b. 19.42g c. 9.70g d. 0.97g ($\text{K}_2\text{CrO}_4 = 194.2\text{g mol}^{-1}$)
58. Hydrogen can be displaced from a hot alkaline solution by
a. Sn b. Fe c. Cu d. Ca
59. The gas that can best be collected by downward displacement of air is
a. chlorine b. sulphur (IV) oxide
c. carbon(IV) oxide d. ammonia
60. Which of the following represents hybridization in ethyne?
a. sp b. sp^3 c. sp^2 d. sp^2
61. The component of an atom that contributes least to its mass is the
a. nucleus b. neutron c. electron d. proton
62. The oil around a battery manufacturing factory is likely to contain a high concentration of
a. Ca^{2+} salts b. Pb^{2+} salts c. Mg^{2+} salts d. Al^{3+} ions
63. Haematite is an ore of
a. zinc b. lead c. iron d. copper kidney
64. Which of two structures are present in a palisade cell but not in a liver cell?
a. cell wall and cytoplasm b. cell wall and chloroplast
c. cell membrane and cytoplasm d. cell membrane and chloroplast
65. The hepatic portal vein in most cases is rich in food nutrients because it carries blood.
a. directly from the heart
b. from the liver to the heart
c. from the small intestine to the liver d. from the liver to join the posterior vena cava.
66. Which of the following occurs when a person looks at a distant, dim object and then look at a much closer bright object? In the eye, the pupil becomes.
a. larger, while the lens becomes thicker
b. larger, while the lens become thinner

- c. small while the lens becomes thicker
d. larger, while the lens becomes thinner.

67. The role of ATP includes all the following *except*
a. provisionary energy to do work in living organism
b. transmission of nerve impulse
c. keeping of body warm in homothermic animals
d. producing water during aerobic respiration.
68. Algae bloom depletes oxygen content of water bodies polluted by
a. industrial effluent b. thermal plant discharge
c. raw sewage disposal d. crude oil spillage
69. Hypogeal germination is characterised by the
a. emergence of the plumule, out of the ground
b. provision of nourishment by the endosperm
c. elongation of the hypocotyls
d. elongation of the epicotyls.
70. Which one of the following statement about the mammalian kidney is false
a. the glomerulus is formed by a branch of the renal artery
b. the glomerulus is a part of the uniferous tubules
c. the Bowman capsule is in the center of the
d. the uriniferous tubules are richly supplied with blood vessels
71. If you cross-breed a tall variety (Tt) of maize with a short variety (tt) the ratio of the tall to short plants in the offspring will be
a. 2:1 b. 1:2 c. 1:1 d. 1:3
72. Oxygen from the atmospheric reaches the mammalian bloodstream through one of the following pathway indicated below a – mouth, b – trachea c- bronchiole d – nostril e- bronchus f – alveoli
a. a!b!e!f!d b. b!d!f!e!c. d! b! e! e! f
d. d! a! f! e! e
73. When a person with blood group O loses a lot of blood to a accident, the person can be given blood from person of blood group
a. O only b. A only c. AB only d. A and O
74. Which of the following statement about the rate of transpiration is incorrect?
a. dependent on temperature
b. affected by changes in light intensity
c. unaffected by humidity
d. affected by availability of water
75. Which of the following combination differentiates a bony fish from a cartilaginous fish?
I – presence of gills II – absence of gill III- possession of a bony skeleton IV- possession of laterally compressed body V – passion of dorso – ventrally compressed body

- a I, II and III b. I, III and IV c. II, III, IV d. II, III and V

APTITUDE TEST

76. A team of eight lumberjacks cut an average of 15,000 cubic feet of timber in a week. How many cubic feet will four lumberjacks cut in four weeks?
a. 30,000 b. 25,000 c. 32,000 d. 16,000
77. A rectangular solid is 19 inches high, 19 inches wide and 19 inches long. What is its volume in cubic inches?
a. 7,000 b. 7,500 c. 8,000 d. 8,500
78. Identify the missing number
- | | |
|----|----|
| 41 | 44 |
| 36 | 66 |
- | | |
|----|----|
| 72 | 78 |
| 62 | ? |
- a. 120 b. 122 c. 130 d. 132
79. It costs a manufacturer X naira per component to make the first 1000 components. All subsequent components cost $X \div 3$ each. When $X = N1.50$, how much will it cost to manufacture, 4,000 components?
a. N3,500 b. N3,000 c. N4,000 d. N3,250
80. In the SUG election, the Republican candidate received one and a half times as many votes as the Democrat. The Democrat candidates received one third more, votes than the independent candidate. 900 votes were cast or the independent candidates. How many votes were cast for the Republican candidates?
a. 900 b. 1,400 c. 1,600 d. 1,800
81. Anna and John both drive to their new home 400 miles away. Anna drives the family car at an average speed of 60mph. John drives the removal truck at an average speed of 50mph. During the journey, Anna stops for a total of 1 hour and 20 minutes, John stops for half as long. What is the difference in minutes between their arrival times?
a. 60 b. 55 c. 40 d. 90
82. Pedro goes either hunting or fishing every day. If it is snowing and windy then Pedro goes hunting. If it is sunny and not windy then Pedro goes fishing. Sometimes it can be snowing and sunny. Which of the following statements must be true?
a. If it is not sunny and it is snowing then Pedro goes hunting
b. If it is windy and Pedro does not go hunting then it is not snowing
c. If it is windy and not sunny then Pedro goes hunting

- d. If it is windy and sunny then Pedro goes hunting.
83. If Judy comes to the Party then Sally leaves the party. If Sally leaves then either Christine or Clara ask Philip to dance. If Philip is asked to dance by either Christine or Clara and Sally leaves the party, Philip accepts. If Philip is asked to dance by either Christine or Clara and Sally does not leave the party, Philip does not accept. If Sally does not leave the party, which of the following statements can be logically deduced from, the information above?
- a. Christine asks Philip to dance b. Clara asks Philip to dance c. Judy does not come to the party d. Philip dances with either Christine or Clara
- Correct the error in each Underlined word, phrase or sentence in 84 and 85.**
84. Jessica Mitford wrote *The American Way of Death*, a best-selling book that led eventually to an official investigation of the funeral industry.
- a. that led eventually b. that had led eventually c. that eventually led d. which led eventually
85. Once upon a point in time, a small person named Little Red Riding Hood initiated plans for the preparation, delivery and transportation of foodstuffs to her Grandmother
- a. and transportation of foodstuff to her grandmother
b. and transportation of food stuffs to her grandmother
c. and transportation of food supplies to her grandmother
d. and transportation of foodstuff to her grandmother.
86. The key on the keyboard used to capitalise letters when p with that letter key is
- a. shift b. hold c. caps lock d. enter
87. In Microsoft word, Times Roman is the name of
- a. a font in MS Office b. paragraph c. escape button d. just Roman
88. Sentence is to paragraph as is to
- a. letter b. sentence c. paragraph d. phrase
89. Which is the odd one
- a. Marriage b. Annul c. divorced. separation
90. Sarah needs to make a cake and some cookies. The cake required a cup of sugar and the cookies required $\frac{3}{5}$ cup of sugar. Sarah has $\frac{15}{16}$ cup of sugar. Does she have enough sugar or how much more does she need.
- a. she has enough sugar b. she needs $\frac{1}{8}$ of a cup of sugar. c. she needs $\frac{3}{80}$ of a cup of sugar d. she needs $\frac{4}{19}$ cup of sugar

91. IN a college, some course contribute more towards GPA than other courses. For example a science class is worth 4 point, mathematics is worth 3 points. History is worth 2 points, and English is worth 3 points. The value of grade letters are as follows, A = 4, B= 3 C, = 2 D, = 1, F = 0. What is the GPA of a student who made "C" in the trigonometry, a "B" in American history, an "A" in Botany an a D in microbiology.
- a. 2.59 b. 2.86 C. 3.08. d. 3.33
92. If $8x + 5x + 2x + 4x = 114$, then $5x+3 =$
- a. 12 b. 25 c. 33 d. 47
93. During a 5-day festival, the number of visitors tripled each day. If the festival opened on Thursday with 345 visitors, what was the attendance on that Sunday?
- a. 345 b. 1725 c. 3,196 d. 9315
- Please select the answer choice that identifies the noun in the sentence in 94-96**
94. it will take all of your energy and will be able to walk again
- a. take b. all c. yours d. energy
95. Sharks and Lampreys are not rue fish because their skeletons are made of cartilage rather than bone.
- a. true b. because c. there d. bone
96. The Trojans' rash decision, to accept the wooden horse, led to their destruction.
- a. their b. led c. accept d. destruction
97. Sabrina's boss states that she will increase Sabrina's salary from N12,000 to N14,000 per year if she enrolls in business course at a local community college. What percent increase in salary will result from Sabrina taking the business courses?
- A16.67% B 26% C 40% D10%
98. If all the 6 are replaced by 9, then the algebraic sum of all the numbers fro 1 to 100 (both inclusive) varies by
- a. 330 b. 324 c. 1200 d. 412
99. From a pack of cards Jack, Queen, King and Ace are removed. Then the algebraic sum of rest of the cards is
- a. 217 b. 218 c. 216 d. 213
100. Swetha, Tina , Uma and Vidya are playing a gambling. In this different people lose in different game in the reverse alphabetical order. The rule is that if one loses she should double the amount of others. At the end of 4th game each of them have same amount of money (N32.00). which one of them started with the least amount?
- a. Vidya b. Tina c. Uma d. Swetha

DELSU POST UTME SCREENING EXERCISE

PAST QUESTIONS

FOR

2009/2010 AFTERNOON

SURNAME (Capital Letters) _____

OTHER NAMES _____

JAMB REGISTRATION NUMBER _____

PROPOSED FACULTY _____

PROPOSED DEPARTMENT _____

QUESTION PAPER CODE: **9:001:A**

TIME: 1 HOUR

- 1. DO NOT OPEN THE QUESTION PAPER UNTIL YOU ARE ASKED TO DO SO**
- 2. ANSWER SHEETS MUST NOT BE TAKEN OUT OF THE EXAMINATION HALL**
- 3. DO NOT DETACH LEAFLETS**
- 4. SHADE THE CORRECT ANSWER IN EACH QUESTION**

SCIENCE , SCIENCE EDUCATION, ENGINEERING, AGRIC. SCIENCE, COLLAGE OF HEALTH SCIENCE AND DIRECT ENTRY

ALL PROGRAMMES

2009.2010 POST-UME SCREENING TEST
CULTY OF MEDICAL SCIENCES, ENGINEERING
AND SCIENCE (AFTERNOON SESSION)

It is generally believed that misers are not loved by many.

- a. spenders b hoarders c. Savers d. spendthrifts

Ese and her brother are simply munificent

- a. angry b. niggardly c. Wealthy d. Happy

He is known for making threadbare arguments as a scholar

- a. justifiable b. baseless c. Empty d. militant

Read each passage and answer the question 4-8 choosing

British electronic manufacturer has built a factory in which quartz crystals can be grown in 3 weeks. The natural growth of quartz takes 3 million years. The manufactured crystals are exceptionally pure and this is important because quartz in transistors is used in an astonishing number of devices where constant television transmitters and receivers, space satellites and computers are familiar examples. In order to make artificial quartz, very small pieces of the natural crystal reported from Brazil are placed in long, narrow, steel cylinders. A high pressure and a high temperature are maintained within the cylinders for 3 weeks and at the end of this time, the small fragments have grown to the required weight of one pound.

Artificial quartz is produced

- a. In Brazil b. from tiny transistors
c. from natural crystals with steel cylinders
d. in an astonishing number of devices

Artificial quartz as compared with natural is

- a. superior b. inferior c. Varied
d. limited is use

According to the passage, quartz is used

- a. only in a few devices b. in a lot of devices
c. in wrist watches d. for steel cylinders

7. Transistors have

- a. helped to produce quartz
b. retarded progress in electronics
c. made transistors and receivers smaller and lighter
d. made transmitters and receivers bigger and heavier.

8. A suitable title for the passage is

- a. natural quartz b. receivers
c. manufactured and natural quartz crystals
d. manufacture of transistors, satellite and computers.

Complete each of the following sentences by choosing the option that most suitably fills the space.

9. If I went to the cinema Iearly
a. am returning b. had returned
c. would return d. Shall return
10. Last weekat the theatre was the largest I had ever seen.
a. audience b. congregation c. Assembly
d. convention
11. My father cannot bear the ...of the concoction that emanates from my mother's soup pot
a. savouring b. smell c. Aroma d. scent
12. If this had happened to you, what...
a. would you do b. would you have done
c. have you done d. Would you be doing
13. The governor commended the society's service to the nation.
a. humanistic b. humanitarian
c. humanity d. Human
14. If we went to an European country...Britain, we should need a substantial amount of money to pay our way
a. let us say b. like say
c. like d. As an example
- choose the option that best conveys the meaning of the underlined portion of each of the following sentences
15. We all have both good and bad characteristics either is, however easily manifested in time of crisis
a. demanded b. demonstrated c. highlighted
d. Ridiculed
16. Ese takes his studies lightly because he is a disco-addict
a. carefully b. unseriously
c. Gloomily d. humorously
17. Can you give a good explanation to your behaviour?
a. clear up b. account for c. give up d. Make up
18. All the efforts made to settle the quarrel were futile
a. fruitless b. unreasonable
c. successful d. Remarkable
19. My son is naturally taciturn
a. loquacious b. dumb c. Lively d. Friendly
20. Accountability is certainly a desirable quality in a politician

- a. respectability b. diligence
c. responsibility d. Courage
21. Due to the fact that we are now insolvent the bill has to wait
a. bankrupt b. unsettled
c. Overworked d. affluent
22. My uncle thinks that her daughter could be easily taken in by her husband's pretences
a. blackmailed b. flattered
c. Deceived d. Enamoured
23. The man has a big heart but he is inept in following witty conversion
a. large b. warm c. Huge d. Fragile
24. For a priest to be successful, he should, from time to time, review his action.
a. examine b. inspect c. Stare at d. visualise
25. My sister used her savings to bring up her niece
a. support b. lead c. Accompany d. Feed

(AFTERNOON SESSION)

APTITUDE TEST

1. The average age of a class is 15.8 years. The average of boys in the class is 16.4 years while that of girls is 15.4 years. What is the ratio of boys to girls in the class?
a. 1:2 b. 3:4 c. 3:5 d. 2:3
2. If one-seventh of a number exceeds its eleventh part by 100 then the number is
a. 770 b. 1100 c. 1925 d. 1825
3. Gold is 19 times as heavy as water and copper is 9 times as heavy as water. In what ratio should these be mixed to get an alloy 15 times as heavy as water?
a. 1:1 b. -2:3 c. 1:2 d. 3:2
4. A triangle always has exactly
a. one acute angle b. at least two acute angle
c. exactly one right angle d. exactly two acute angles
5. Pipe A can fill in 20 minutes and Pipe B in 30 mins and Pipe C can empty the same in 40 mins. If all of them work together, find the time taken to fill the tank.
a. 17/17 mins b. 172/7 mins
c. 71/9 mins d. 121/5
6. The smallest number which when diminished by 3 is divisible by 21, 28, 36 and 45 is
a. 869 b. 1263 c. 4320 d. 427
7. The process of a computer receiving information from a server on the Internet is known as
a. pulling b. pushing
c. Downloading d. transferring

8. The role of agenerally is to determine a buyer's needs and match it to the correct hardware and software.
a. computer scientist b. computer sales representative
c. Computer consultant d. corporate trainer.
9. A(n).....contains commands that can be selected
a. pointer b. menu c. Icon d. Bottom
10. Sending an e-mail is similar to –
a. picturing an event b. narrating a story writing a letter
c. Creating a drawing
11. A series of instructions that tells a computer what to do and how to do it is called a
a. program b. command
c. User response d. processor

Rearrange the following six sentence (1), (2), (3), (4), (5), and (6) in the proper sequence to form a meaningful paragraph, then answer the questions given them.

- (1) She eased out something from her waist folds
(2) Nnena welcomed a customer early in the day
(3) Once visible, Nnena realised it was a pair of gold bangles.
(4) The woman carefully counted the money and then left.
(5) He took the bangles and placed some money in the woman's palm
(6) This customer was a peasant woman wearing a discoloured sari and old anklets.
12. Which of the following should be the **FIRST** sentence after rearrangement?
a. 1. B. 2 c. 3 d. 4
13. Which of the following should be the **SECOND** sentence after rearrangement?
a. 2 b. 3 c. 4 d. 6
14. Which of the following should be the **THIRD** sentence after rearrangement?
a. 1 b. 2 c. 3 d. 4
15. Two numbers are respectively 25% and 20% less than a third number. What percent is the first number of the second.
a. 5.85% b. 75.85% c. 80.60% d. 93.75%
16. A can do a peace of work in 4 hours. B and C can do it in 3 hours. A and C can do it in two hours. How long will B take to do it?
a. 10 hours b. 12 hours c. 8 hours d. 24 hours
17. A face of the clock is divided into three parts. First hours total is equal to the sum of the

second and third part. What is the total of hours in the bigger part?

- a. 6 hrs b. 7hrs c. 4 hrs d. 5 hrs

2 trees are there. One grows at $\frac{3}{5}$ of the other. In 4 years total growth of the trees is 8ft. What growth will smaller tree have years?

- a. 1.2 b. 1.4 c. 1.1 d. 1.5

Joseph finished a work in 7 days, Nicholas finishes the same job in 8 days and Edwin in 6 days. They take turns to finish the work. Joseph on the first day, Nicholas on the second and Edwin on the third day and then Joseph again and so on. On which day will the work get over?

- a. 3rd b. 6th c. 9th d. 7th

A man, a woman and a child can do a piece of work in 6 days, man can do it in 14 days, woman can do it in 16 days, and in how many days can a child do the same work?

- a. 24 days b. 25 days c. 16 days d. 20 days

Which of the phrases (A), (B) and (C) given below each sentence should replace the phrase printed in **bold** in the sentence to make it grammatically correct? If the sentence is correct as it is given and 'No correction is required', mark (D) as the answers

I woke up early in the morning and had a steamer cup of coffee.

- a. has a steamer b. has a steaming
 c. had a steaming d. No correction required

Tired of being harassed by the goons, I finally called the police and complained-

- a. in being harassed
 b. of being harass
 c. in be harassed
 d. No correction required

The ratio of incomes of C and D is 3:4 the ratio of their expenditures is 4:5. Find the ratio of their savings of the savings of C is one fourth of his income?

- a. 11:12 b. 12:19
 c. 10:13 d. 13:15

If $G(0) = -1$, $G(1) = 1$ and $G(N) = G(N-1) - G(N-2)$, then what is the value of $G(6)$?

- a. 1 b. 2 c. -1 d. -2

A person had to multiply two numbers. Instead of multiplying by 35, he multiplied by 53 and the product went up by 540. What was the raised product?

- a. 780 b. 1040 c. 1590 d. 1720

GENERAL PAPER

1. 0.46g ethanol when burned raised the temperature of 50g of water by 14.3K. Calculate the heat of combustion of ethanol
 A] $+3000\text{kJmol}^{-1}$ b. $+300\text{kJmol}^{-1}$
 c. -3000kJmol^{-1} d. -300kJmol^{-1}
2. Make u the subject of the formula
 $\frac{1}{v} + \frac{1}{u} = \frac{1}{f}$

- a. $Vf + u$ b. $\frac{1}{uvf}$ c. $Uv - f/v$ d. $-vf/f-v$

3. Evaluate $\int x dx$
 a. $2x + c$ b. $x + c$ c. $\frac{1}{2}x^2 + c$ d. $\frac{1}{2}x^2 + c$

4. Differentiate $y = \sqrt{x}$ with respect to x
 a. $\frac{1}{6}$ b. 8 c. 4 d. $\frac{1}{4}$

5. The angle subtended by a diameter of a circle at the circumference is a/an
 a. equilateral angle b. supplementary angle
 c. right angle d. Reflex angle

6. The two parallel sides of a trapezium are 10cm and 6cm. If its height is 4cm. Find the area of the trapezium.
 a. 24cm^2 b. 32cm^2 c. 40cm^2 d. 56cm^2

7. The exterior angle of a triangle is 76° . If one of the opposite interior angles is 42° , and the other opposite interior angle
 a. 36° b. 52° c. 48° d. 39°

8. A trader bought a bicycle for N645 and sold it for N862. Find the percentage gain
 a. 41% b. 33% c. 27.2% d. 51.2%

9. The speed of the flow of water in a river is faster in the middle than along the bank due to
 a. differences in turbidity at different parts of the river
 b. the abundance of fishes and other organisms along the bank.
 c. reduced force of gravity in the middle portion of the river.
 d. resistance offered by the wall of the bank

10. If red is dominant to white and homozygous red pea-plants are crossed with homozygous white pea-plants, the first filial generation will have
 a. two red flower, two white flowers
 b. four red flowers,
 c. three red, one white
 d. Four pink flowers

11. A population is defined as the collection of
 a. similar organisms that are found in the same habitat
 b. similar organism that breed in the same habitat
 c. similar organisms that eat the same food

- d. similar organism that interbred freely in the same habitat
12. The equation that can be used to summarize the process of anaerobic breakdown of sugar is:
 a. $C_6H_{12}O_6 \rightarrow 2C_2OH + 2CO_2$
 b. $6CO_2 + 6H_2O \rightarrow C_6H_{12}O_6 + 6O_2$
 c. $C_6H_{12}O_6 + 6O_2 \rightarrow 6CO_2 + 6H_2O + \text{energy}$
 d. $C_6H_{12}O_6 \rightarrow 2C_2H_5OH + 2CO_2 + \text{Energy}$
13. In animal evolution which of the following set of organisms represents the correct trend in terms of structural organization.
 a. 4→1→2→3 b. 4→3→2→1
 c. 4→2→1→3 d. 4→2→3→1
14. Which of the following is not a feature of meiosis?
 a. formation of four haploid cells
 b. two successive nuclear cell division
 c. pairing of homologous chromosomes at prophase
 d. formation of two diploid cells
15. Which of the following is a means of measuring primary production?
 a. rate of reproduction of animals
 b. life span of an organism
 c. number of predators in an environment
 d. harvested plants in a unit area
16. What is the percentage by mass of oxygen in $Al_2(SO_4)_3 \cdot 2H_2O$?
 a. 59.25% b. 50.79% c. 25.39%
 d. 14.29% (Al = 27, S = 32, H = 1, O = 16)
17. A balanced chemical equation obeys the law of
 a. conversation of mass. b. multiple proportion
 c. Definite proportions d. conservation of mass
18. To what temperature must gas at 273k be heated in order to double both its volume and pressure?
 a. 298k b. 546k c. 819k d. 1092k
19. Neutralisation involves a reaction between H_3O^+ and
 a. Cl^- b. OH^- c. NO_3^- d. CO_3^{2-}
20. In the extraction of iron in the blast furnace, limestone is used to
 a. release CO_2 for the reaction b. reduce the iron ore
 c. increase the strength of the iron d. remove impurities
21. A pin is placed under a transparent glass block of height 12cm. If the refractive index of the glass is 1.56, the image will appear to be at
 a. 18.72cm b. 10.44cm
 c. 7.69cm d. 0.05cm
22. Hypermetropia (long sightedness) is corrected by
 a. concave mirror b. plane mirror
 c. plans concave mirror d. Convex
23. Resonance in circuits is a conduction in which the circuit
 a. produces highest resistance or impedance
 b. produces no current c. produces maximum current
 d. refuses to function
24. A pinhole camera of length 12cm has the image of an object 45m away on its screen at the 12cm mark. If the height of the object is 2 metres, calculate the height of the image.
 a. 2.5cm b. 3.6cm c. 1.6cm d. 0.63cm
25. According tolaw, the induced EMF is directly proportioned to the rate of change of magnetic flux
 a. Lenz's b. Faraday's c. Ampere's d. Ohm's
26. Which of the following does not happen during inspiration?
 a. intercostals muscles contract b. ribs move forward
 c. thoracic cavity increase d. diaphragm relaxes
27. A photometer was used to compare the rate of loss of the same volume of water from plant under different environmental conditions namely; in the airy laboratory, in the cupboard, under fan, under sun and at the seashore. Which of the reading below was likely obtained in a cupboard?
 a. 15secs b. 30secs
 c. 25secs d. 20secs

NO DIAGRAM

Figure 1

- Use figure 1 to answer questions 28 and 29
28. The testis
 a. is normally absent b. is included in the part of numbered 1
 c. is fused with the part number 3
 d. is the part number 1
29. Reserved food is stored in the part numbered
 a. 2 and 3 b. 3 only c. 4 and 5 d. 5 only
30. When an operculate fish breathes, it takes in water through the
 a. mouth and passes it out through the same way
 b. mouth and passes it out through his operculum
 c. operculum and passes it out through the mouth
 d. nostril and passes it out through the operculum
31. Acan store charges until when required for use

- a. galvanometer b. comparator c. Diode
d. capacitor
32. The wheatstone bridge circuit usually has sets of resistors
a. five b. two c. Three d. Four
33. The temperature of water in a flask is 50°C . In the Fahrenheit scale, this will read
a. 90°F b. 122°F c. 27.8°F d. 60°F
- 20 cm^3 of a gas was maintained at 5°C and 760mmHg pressure. What volume of this gas will be maintained at a temperature of 35° and 800mmHg pressure
a. 20.7cm^3 b. 21.05cm^3 c. 39.5cm^3 d. 67.8cm^3
- 35.....means bending of light rays from their path.
a. reflection b. Conduction c. refraction
d. Transmission
36. Find the 40th term of the A.P 8, 5, 2...
a. -407 b. -316 c. -109 d. -241
37. Find the area of a triangle of sides 3cm, 4cm and 5cm

10 OPTION

38. Find the value of k if $(x+1)$ is a factor of $x^3 + kx^2 + 3x - 2$
a. 5 b. 12 c. -10 d. 6
39. Simplify $\sqrt{405}$
a. $5\sqrt{3}$ b. $6\sqrt{2}$ c. $9\sqrt{5}$ d. $3\sqrt{6}$
40. If 3 is a root of the equation $x^2 - kx + 42 = 0$ the value of k is
a. 18 b. 19 c. 22 d. 17
41. The period of an oscillating body is 0.08sec. Its frequency is
a. 50Hz b. 78.6Hz c. 12.5Hz d. 70Hz
42. If the force on a charge of 0.3 coulomb in an electric field is 4N, then the electric field intensity of the field is
a. 13.3N b. 0.75N c. 3.7N d. 1.2N
43. A radio station transmits with a frequency of 2500kHz, the wave length of its waves is... (take $c = 3 \times 10^8 \text{m/s}$)
a. 120m b. 83.3m c. 7500m d. 2000m
44. Which of the following are structural isomers?
a. propanoic acid and propan-1, 2-diol

- b. ethanoic acid
c. Ethan-1, 2-diol and ethanoic acid
d. propanal and propanone
45. When a solid substance disappears completely as a gas on heating, the substance is said to have undergone.
a. crystallisation b. evaporation
c. sublimation d. distillation
46. Which of the aqueous solutions with the pH values below will liberate hydrogen when it reacts with magnesium metal?
a. 12.0 b. 7.0 c. 6.5 d. 3.0
47. Which of the following electron transitions result in the emission of energy.
a. 3p to 3s b. 3p to 4p c. 2s to 2p d. 1s to 2s
48. The fundamental difference between the three states of matters is the
a. shape of their particles
b. number of particles in each state
c. shape of the container they occupy
d. degree of movement of their particles
49. A particle that contains 9 protons, 10 neutrons and 10 electrons is a
a. positive ion b. neutral atom of metal
c. neutral atom of a non-metal d. negative ion
50. When sodium reacts with water, the resulting solution is
a. Alkaline b. acidic c. Neutral d. weakly acidic

DELSU POST UTME SCREENING EXERCISE

PAST QUESTIONS

FOR
2008/ 2009

SURNAME (Capital Letters) _____

OTHER NAMES _____

JAMB REGISTRATION NUMBER _____

PROPOSED FACULTY _____

PROPOSED DEPARTMENT _____

QUESTION PAPER CODE: 9:001:A

TIME: 1 HOUR

- 1. DO NOT OPEN THE QUESTION PAPER UNTIL YOU ARE ASKED TO DO SO**
- 2. ANSWER SHEETS MUST NOT BE TAKEN OUT OF THE EXAMINATION HALL**
- 3. DO NOT DETACH LEAFLETS**
- 4. SHADE THE CORRECT ANSWER IN EACH QUESTION**

SCIENCE , SCIENCE EDUCATION, ENGINEERING, AGRIC.
SCIENCE, COLLAGE OF HEALTH SCIENCE AND DIRECT ENTRY

ALL PROGRAMMES

2008/ 2009 SCIENCE ENGLISH LANGUAGE

Fill each gap with the most appropriate option from the list following the gap

- In moments of serious economic hardship, many people are
(a) Concerned (b) inclined
(c) disposed (d) propensed to turn to God.
2. We can not all wear expensive shoes in situation of .
(a) Divergent demand and supply
(b) uneven wear and tear
(c) differing PURCHASING power
(d) Unpredictable national income
3. That center forward was
(a) in an off-side position
(b) very well posit zone
(c) a brilliant player
(d) the captain of the team consequently the goal Was not disallowed.
4. AIDS is
(a) too much a deadly (b) very deadly a
(c) so deadly
(d) suck deadly a disease that it kills slowly but surely.
5. Soyinka's masterful
(a) evocation (b) invocation (c) convocation
(d) revocation of the atmosphere of his childhood, helped to make his book a success.
- Choose the word or phrase closest in meaning lathe underlined worth**
6. His penury gave him a lifetime of hunger
(a) avariciousness (b) affluence
(c) poverty (d) penny pinching.
7. The Bible's prodigal son became quite wealthy eventually
(a) prestigious (b) phlegmatic
(c) errant (d) pecuniary.
8. Don't eat just any innocuous looking mushroom you see around
(a) harmful (b) harmless
(c) innocent (d) immunized.
9. Colossal means
(a) a Greek column. (b) gigantic
(c) something which has lost too much fluid (d) calamity

Fill the blank spaces in the following sentences making use of the best of four options

10. The telephone in the nineteenth century and is now used in most countries in the world.
(a) Had been invented (b) was invented (c) would have been invented (d) has been invented
11. By the end of the next semester he his University education
(a) would have completed (b) will be completing
(c) shall have completed (d) was completing
12. In the past his father used to walk but nowadays he to work by bicycle.
(a) was going (b) is going
(c) seldomly goes (d) goes
13. The students so much noise while the tu was going on that the lecturer had to walk out of the class.
(a) made (b) had been making
(c) were making (d) gad made.
14. Olukayode as a mechanic when he was young, but now he is a driver
(a) had been working (b) used to work
(c) would work (d) had worked.
15. it might not look such a rosy proposition.
(a) from his viewing proposal (b) when he views the proposal
(c) Having viewed the proposal (d) from his point of view.
16. If we went to any European country Britain, we should need a substantial amount of money to pay our way
(a) like (b) let us say
(c) as an example (d) like say

Read the passage below and Answer Question 17 -21

Rufus Okeke-roof, for short – was a very popular man in his village. Although, the villagers di not explain it in so many words. Roof's popularity was a measure of their gratitude to an energetic young man who, unlike most of his fellows nowadays, had not abandoned the village in order to seek work, any work, in the towns. Roof was not a village tout either. Everyone knew how he had spent two years as a bicycle repairer's apprentice in Port-Harcourt and had given up of his own free will a bright future to return to his people and guide them in these political times. Not that Umuofia needed a lot of guidance. The village already belonged en masse to the people's Alliance Party and its most illustrious son, chief the Honourbale Marcus Ibe, was Minister of culture in the outgoing government. (which was pretty certain to be the incoming one as well).

Nobody doubted that the Honourable Minister would be elected in his constituency. Opposition to him was like the proverbial fly trying to move a dunghill. It would have been ridiculous enough without coming, as it did now, form a complete nonentity.

As was to be expected, roof was in the service of the Honourable Minister for the coming elections.

He had become a real expert in election campaigning at all levels-village, local government or national. He could tell the mood and temper of the electorate at any given time. For instance, he had warned the Minister months ago about the radical change that had come into thinking of Umuofia since the last national eleciton.

- 17. Rufus Okeke was very popular with the people because he
 (a) was energetic (b) had decided to pitch his tent with the villages (c) did not like town life (d) could not live without his parents.
- 18. A village tout can be described as being
 (a) unemployed (b) crazy (c) energetic (d) lazy (d) servile
- 19. The reference to Okeke's bright future's in Port-Harcourt can be described as being
 (a) sarcastic (b) true(c) untrue (d) irrelevant
- 20. The writer is saying indirectly that political parties in power could be
 (a) unpredictable (b,) honest (c) corrupt (d) servile
- 21. Which of the following statements would be considered correct with reference to Okeke as an election expert?
 (a) It is true the he was an expert
 (b) It is doubtful that he was an expert
 (c) It is most likely to be true that he was expert
 (d) There are no election experts.

Choose the word or phrase closest in meaning to the underlined word:

- 22. His Penury gave him a lifetime of hungers
 (a) avariciousness (b) affluence
 (c) poverty (d) penny pin bing
- 23. The Bible's Prodigal son became quite wealthy eventually
 (a) prestigious (b) phlegmatic
 (c) errant (d) pecuniary . .
- 24. Don't eat just any innocuous looking mushroom you see around
 (a) harmful (b) harmless

- (c) innocent (d) immunized
- 25. Colossal means
 (a) a Greek Column (b) gigantic (c) something which has lost too much fluid (d) a calamity

2008/2009 APTITUDE TEST SCIENCE

Use the table à4ovefot questions 26 —28

- 26. if the number of items on display for under .N5 rose by 10% per year superstore A and 5% per 3ear at Superstore B what would be the difference between superstore in the number of items on sale for under f15 after 4 ears 7
 (a) 44 (b)293 (c) 1,198 (d) Cannot say
- 27. What percentage of all items on sale in both superstores cost less than £20?
 (a) 68.0% [b'] 64.8% (c) 68.9% - (d) 70,0%
- 28. If Superstore A were to increase the cost of every item by N0.50 how many items Would be on display for less than N2?
 (a) 795 (b) 80 (c) 614 (d) Cannot say

Read the passage below and Answer Question; 29—31

"Ever since the gun's inventions it has been changing the world in many different ways. Many of these changes have been brought about by man's desire: protect' themselves, and the challenge of inventing bigger and molt accurate weapons. Each time there has been a major innovation in the development of the gun; there has been a profound effect on the world. The gun helped in the exploration .5hv world. It has also helped in the development of society as we know it

- 29. The gun was invented because the human race needs to protect themselves
 [a] True (b) False (c) Cannot say (d) Very sure
- 30. Guns are the reason our society is the way it is today
 [a] True (b) False (c) Cannot say (d) Easy to know . .
- 31. financial incentive had no part to play in the development of the gun
 [a] True (5) False (c) Cannot Say (d)Cannot say
- 32. Which company has. the highest annual profit per employee ?
 (a) A (b) b (c) C (D) d
- 33. If the profits per employee remain the same, how many extra employees would company recruit to achieve annual profits of N39,000? -
 (a) 6 (b)3 (c) 12 (d) 4.

34. if an investor purchased Company B, and the profits for each company stayed the same, how much money would the investor have made after two years?
 (a) N21,000 profit (b) N2,000 loss
 (c) N2,700 Profit (d) N52,000Profit.

35. Choose the word most Opposite in meaning to -- absolve
 (a) Condemn (b) Pardon (c) Free (d) I

36. Choose the word most nearly opposite in meaning to - arrogate
 (a) Commandeer (b) Seize
 (c) Defeat (d) Surrender



Use the plan above for questions 37 - 39

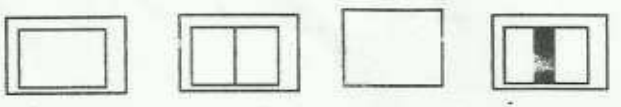
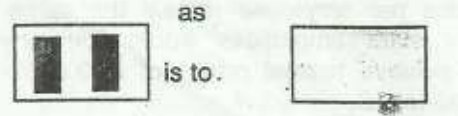
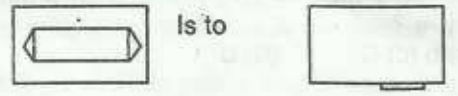
Use the plan above for question 37 - 39 -

37. Officer Periz is in Tosh St. with hall to her right. What direction is she facing?
 (a) North (b) South (c) East (d) West

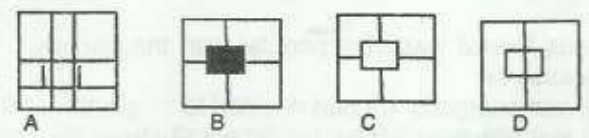
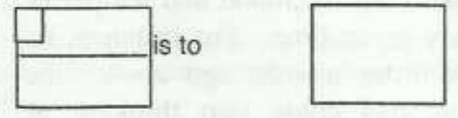
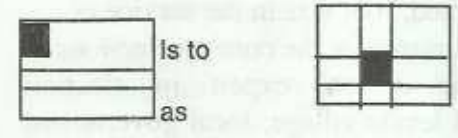
38. She turns and walks to junction with West St. then turns right and walks of the next junction before left. Where is location Gin relation to her position?
 (a) North (b) South (c) East (d) West

39. Officer Martinez Starts from location M' and proceed as follows fell onto Valencia Av — heading east . second left-heading North second right-heading East. second left heading North. He proceeds North for two blocks, What is his location?
 A. N B. O C. R D. P

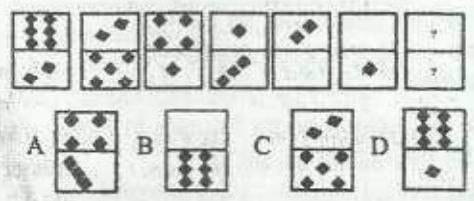
40. Which figure complete the statement -



41. Which figure complete the statement



42. Which figure is next in the series



43. you have plastic chips in your hand which are red on top .and on the bottom , if you dropped plastic . how many would probably land with the red side up
 [a] 2 [b] 4 [c] 5 [d] 6

44. Whenever the outdoor temperature drops below --4 Degrees Celsius your car will not start the principle that best described your car is
 [a] unreliable [b] Internal Consistency
 [c] Valid [d] Reliable

Read the passage below and answer question 45 -47

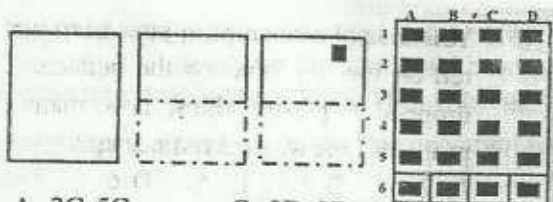
There are seven species of deer living wild in Britain. Tire Red Deer and the Roe Deer are native species. Fallow Deer were introduced by the Romans arid since the seventeenth century. Have been joined by three other non-native species : .Sika , Muntjac and Chinese water Deer the ancestors of which have escaped from parks In addition, a herd of Reindeer was established in Scotland in 1952. most of (he Red Deer it Britain are found in Scotland and .but there are significant wild populations in south west and north west England, East Anglia and the north midlands. Red deer can inter breed with the

introduced Japanese Sika deer and in some areas, hybrids are common.

45. All of the red Deer in Britain are found in Scotland
(a) True (b) False (c) Can't say (d) Not Know
46. Red Deer can interbreed with Fallow Deer
(a) True (b) False (c) Cant say (d) impossible
47. The Fallow Deer is 001 name to Britain
(a) True (b) False (c) Cant say (d) Possible to know.

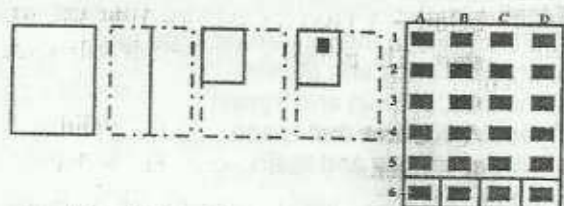
The drawings shows a sheet of paper which has been folded. The dashed lines indicate the whole sheet each drawing represents single fold. The black square shows a hole was punched. Where do the holes appear when the sheet is unfolded? The drawing shows a sheet of paper which has been folded. The dashed lines indicate the whole sheet, each drawing represent single fold. the black square shows that a hole was punched, where do the hole appear when the sheet is unfolded

48



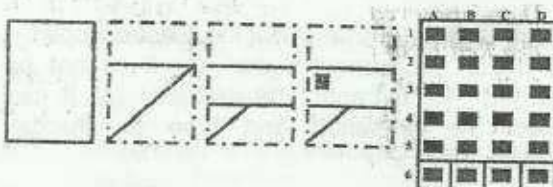
- A 2C, 5C C 3D, 3D
B 2D, 5D D 2C, 2D

49



- A 1B, 2C, 5B, 5C C 1B, 2C, 6B, 6C
B 2B, 2C, 5D, 5C D 1B, 1C, 6B, 6C

50



- A 3A, 2A, 6D C 3A, 5A, 2A
B 3A, 5A, 6D D 3A, 2A

2008/2009 SCIENCE GENERAL PAPER

51. The general formula for the alkanals is (a) RO_1- (b) RCO (c) RU_{10} (d) RCOOR'
52. Group 1 metals are not found free in nature because they
(a) Are of low melting and boiling points (b) Are very reactive (c) Have weak metallic bonds (d) Conduct electricity and heat.
53. Water for town supply is chlorinated to make it free from
(a) Bad Odour (b) Bacteria (c) Temporary hardness (d) Permanent Hardness
54. An element is electronegative, if
(a) it has tendency to loss electrons (b) it has tendency to gain electrons. (c) it has tendency to exist in gaseous state (d) Its ion dissolves readily in water.
55. Suitable reagents for the laboratory preparation of nitrogen are:
(a) Sodium dioxonitrate (VI) and ammonium chloride (b) Sodium trioxonitrate (V) and ammonium chloride (c) Sodium chloride and ammonium trioxonitrate (V) (d) Sodium chloride and ammonium dioxonitrate (VI)
56. Which of the following types of bonding does not involve the formation of new substances? -
(a) Covalent (b) Metallic (c) Dative (d) Ionic
57. The oxidation number of chlorine in $HClO_4$ is
(a) +1 (b) +2 (c) +4 (d) +7
58. Which of the following pollutants is biodegradable? (a) Domestic sewage (b) Metal Scraps (c) Radioactive waste (d) Plastic soil
59. Sea shells contain mainly $CaCO_3$. Calcium oxide can be prepared from sea shells by (a) heating at a high temperature (b) Reduction with CO (c) Adding dilute acid (d) -Adding dilute NaOH.
60. What is the IUPAC name of $CH_3CH_2COOCH_3$?
(a) Ethylethanoate (b) Methylpropanoate (c) Methylpropanoate (d) Propylmethanoate
61. What is the volume of a cone of base radius $3\frac{1}{2}$ cm and vertical height 7cm. (Take $\pi = \frac{22}{7}$)
(a) $44\frac{1}{2}m^3$ (b) $89\frac{1}{2}m^3$ (c) $179\frac{1}{2}m^3$ (d) $535\frac{1}{2}m^3$
62. A three digit number is formed by arranging 3, 2, 8 in a random order. What is the probability that it is divisible by 4?
(a) 0 (b) $\frac{1}{6}$ (c) $\frac{1}{3}$ (d) 1.
63. Given that $\sin(5x - 28)^\circ = \sin(3x - 50)^\circ$ where all the angles are acute. Find the value of x.

- (a) 39 (b) 32 (c) 21. (d) 14.
64. The next two terms of the sequence 2,3,7,16,32, ... are
(a) 57,93 (b) 64, 128 (c) 48,64 (d) 55, 91.
65. Evaluate the integrate $\int_0^4 (2x - 4 - 1) dx$
(a) 0 (b) (c) 2 (d) 4
66. Given that 1 5.00cm³ of 112504 was required to completely neutralize 25.00cm³ of 0. 25mol dii? NaOH. Calculate the molecular concentration of the acid solution.
A. 0.925mol dm⁻³ B. 0.156 dm⁻³ C. 0.104 dm⁻³ D. 0.023 dm⁻³
67. In the conductance of aqueous Pettasium tetraoxosulphate (VI) solution, the current carries are the
(a) Ions (b) Electrodes (c) Hydrated Ions (D) 1-fydrated electrons.
68. Sodium metal is always kept under oil because it
(a) readily reacts with water
(b) is reduced by atmospheric nitrogen
(c) Reacts vigorously on exposure to air
(d) Reacts with oxygen and carbon (IV) oxide.
69. which of the following is an electrolyte?
(a) Alcohc
(b) Mercury
(c) Sodium acotae solution
(d) Solid potassium hydroxide
70. The reaction of an alkene with hydrogen in the presence of:: catalyst is
(a) An oxidative reaction (b) A substitution reaction (c) A nuelephilic reaction (d) An addition reaction
71. During blood transfusion agglutination may occur as a result of the reaction between
(a) Antigens and antibodies
(b) contrasting antigens and antibodies
(c) two different reaction.
(d) two different antibodies
72. Which of the following is not part of the objectives of conservation of natural resources?
(a) to eliminate wild animals in order to enable other plants and animals survive
(B) to use our resources on sustained yield basis
(c) to guard against indiscriminate killing of plant and animals
(d) to guard against the extinction and exhaustion of natural resources.
73. Assuming that 'A' is gene for normal skin and it is dominant , while 'a' is gene for albnism and it is recessive. What is the likely genotype of a couple who had 50% albinos?
- (a) AA,Aa (b) AA,aa (c) Aa,Aa (d) Aa,aa.
74. Which of the following is transmitted through mosquito bites
(a) filariasis (b) typhus (c) plague (d) schistosomiasis
75. The anatomical evidence usually used in support of evolutionary relationship among whales, humans, birds and dog is the possession of:
(a) thick skin (b) pentadecty limb (c) tail (d) epidermal structure
76. The probability of a baby being a boy or a girl depends on the contribution of the:
(a) mother's sex cell
(b) mother's X chromosomes
(c) father's sex cell
(d) Father's somatic chromosomes
77. Which of the following equations is not associated with photosynthesis (a) $H_2O \rightarrow 11 + Oil$ (b) $C_6H_{12}O_6 \rightarrow 2C_2H_5OH + 2CO_2$ (c) $CO_2 \pm [41-1] \rightarrow C_{11}H_{22}O_{11} + 11H_2O$ (d) $4O_2 \rightarrow 2H_2O + O_2$
78. The factors that determines the distribution of vegetation zone are;
(a) temperature, light air and humidity (b) Tight, humility, air and mist (c) temperature, Mght, rain and humidity (d) humidity, snow, frost and dew.
79. The formation of water in issues respiration results form the:
(a) reduction carbon (iv) oxide
(b) breakdown of water molecules
(c) reduction of oxygen by hydrogen
(d) combination of water molecules.
80. The enzymes in the panereatic juice are:
(a) ptyalin, lipase and pepsin
(b) maltase, crepsin and trypsin
(c) rennin, sucrase and lipase
(d) amylase, lipse and tiysin.
81. A body with an initial velocity of 1 Om/s accelerates uniformly at 6m/s² for 2 minutes. What distance is covered by the body?
(a) 32km (b) 12 km (c) 32m (d) 44km.
82. Which of these is true about the Electroscope?
(a) It can produce charges (b) It cannot be charged (c) It cannot be carthed (d) It can detect the presence and type of charges present.
83. The Cork Screw rule is used to deterrrne
(a) The lbrce direction in a cc. actor (b) The magnetic field direction in a wire (c) the quantity of charge in a wire
(d) The electric field strength in a region.

84. Which of these is the expected temperature range of a clinical thermometer
 (a) $0^{\circ}\text{C} - 36^{\circ}\text{C}$ (b) $20^{\circ}\text{C} - 60^{\circ}\text{C}$
 (c) $50^{\circ}\text{C} - 100^{\circ}\text{C}$ (d) $34^{\circ}\text{C} - 44^{\circ}\text{C}$.
85. In an experiment with an equilateral glass prism, the angle of minimum deviation is $4Q^{\circ}$. Calculate the refractive index of the glass prism.
 (a) 0.88 (b) 1.14 (c) 1.53 (d) 1.97
86. A stone is thrown vertically upwards with a velocity of 40m/s . If acceleration due to gravity is 10m/s^2 . What is the maximum height reached by the stone?
 (a) 2m (b) 16Gm (c) 8Dm (d) 32Gm.
87. An object is placed 20cm in front of a converging lens of focal length 15cm. The magnification of the image of the object is.
 (a) 3 (b) 4 (c) 60 (d) 413.
88. Lightening and its associated thunder have relative time difference to an observer because
 (a) they do not occur simultaneously
 (b) Speed of sound is less than speed of light
 (c) Their propagation media differ
 (d) They occur at different altitudes.
89. Two forces each 10N act perpendicular to each other; one being vertical and the other horizontal force. The resultant force is
 (a) $142 \cos 45^{\circ}\text{N}$ (b) $410 \cos 45^{\circ}\text{N}$
 (c) $10 \sin 45^{\circ}\text{N}$ (d) $20 \sin 45^{\circ}\text{N}$
90. The wavelength of a source in air is 1.65m. Calculate the period if the speed of the sound production in air is 330ms^{-1}
 (a) 200sec. (b) 0.02sec (c) 0.5.sec (d) 0.005sec
91. In epigeal germination, the cotyledons are: (a) carried above the ground by the elongating hypocotyls (B) pulled underground by the elongating hypocotyls (c) Pulled underground by the elongating epicotyl (d) carried above the ground by the elongating epicotyl
92. When a marine fish was introduced into a freshwater river, it died after a short period because:
 (a) the body of the fish shrank as their sap was hypertonic to the freshwater
 (b) the freshwater river was too cold for the fish
 (c) there was no quality food in the river and the fish starved to death
 (d) the body cell of the fish swelled and burst because of the hypo-tonic freshwater
93. The multiplication below was done in base 7. What is the value of x? $437_x \times 6_x = 612_x$
 (a) 1 (b) 2 (c) 3 (d) 4
94. Make t the subject of the formula $t = \frac{wv}{k}$
 (a) $t = \frac{wv}{k}$ (b) $t = \frac{kw}{v}$ (c) $t = \frac{kv}{w}$ (d) $t = \frac{w}{kv}$
95. Six men weigh 60 kg, 70kg, 73kg, 82kg and 72kg respectively. Find the median weight of the men.
 (a) 77.5kg (b) 70.5kg (c) 71kg (d) 70kg.
97. Solve the equation $27^x = 1$.
 (a) $\frac{1}{3}$ (b) 5 (c) $\frac{2}{3}$ (d) $381x.2$
98. Find the slope of the tangent to the curve $y = 3x^2 - 4x + 2$ at $x = 1$
 (a) 9 (b) 10 (c) 11 (d) 12
99. Convert 43_5 ton number in base 3.
 (a) 211 (b) 12J (c) 102 (d) 112)3
100. A bag contains 3 white, 4 black and 5 red identical balls. A ball is chosen at random from the bag. What is the probability that it is black or red?
 (a) $\frac{1}{3}$ (b) $\frac{1}{3}$ (c) $\frac{9}{20}$ (d) $\frac{7}{20}$.

DELSU POST UTME SCREENING EXERCISE

PAST QUESTIONS

FOR
2007/ 2008

SURNAME (Capital Letters) _____

OTHER NAMES _____

JAMB REGISTRATION NUMBER _____

PROPOSED FACULTY _____

PROPOSED DEPARTMENT _____

QUESTION PAPER CODE: 9:001:A

TIME: 1 HOUR

1. DO NOT OPEN THE QUESTION PAPER UNTIL YOU ARE ASKED TO DO SO
2. ANSWER SHEETS MUST NOT BE TAKEN OUT OF THE EXAMINATION HALL
3. DO NOT DETACH LEAFLETS
4. SHADE THE CORRECT ANSWER IN EACH QUESTION

SCIENCE , SCIENCE EDUCATION, ENGINEERING, AGRIC.
SCIENCE, COLLAGE OF HEALTH SCIENCE AND DIRECT ENTRY

ALL PROGRAMMES

**2007/ 2008 DELSU POST UTME QUESTIONS FOR SCIENCES, HEALTH SCIENCES, ENGINEERING,
AGRIC. SCIENCES. SCIENCES EDIL. AND DIRECT ENTRY**

2007/2008 ENGLISH LANGUAGE SCIENCE

Complete each, of the following, sentences by choosing the option that most suitably fills the space

1. The cost of living is always higher in
(a) city places (b) city
(c) city area (d) city areas
2. To build the highway, they will have a lot of trees
(a) to cut (b) to cut up
(c) to cuffing (d) to cut down
3. The purpose of this ceremony is to honour the \
(a) dead (b) died
(c) dead persons (d) dead people.
4. Gradually, the loses the ability to hold water
(a) Ground (b) Soil (c) Grounds (d) Soils
5. The' country's GNP is -----very quickly
(a) growing up (b) grown (c) grown up (d) growing
6. She likes reading----- novels
(a) historic (b) history (c) historical (d) historically
7. my younger sister is not . ----- enough to get married
(a)matured(b)mature(c)maturing(d)very matured

Read the passage carefully and answer the questions that follows

Primitive man was probably more concerned with fire as a source of warmth and as a means of cooking food than as a source of light. Before the discovered less laborious ways or making fire to preserve it, and whenever he went on a journey he earned a firebrand with him. His discovery that the firebrand, from which the torch may well have developed. could be used for illumination , was probably incidental to the primary purpose of preserving a theme. Lamps. too, probably developed by accident. Early man may have had his first conception of a lamp while watching a twig or fibre burning in the molten fat dropped from roasting carcass. All he had to do was to fashion a vessel to contain fat and float a lighted reed in it

Primitive man preserved fire because
(a) he wanted to develop the torch
(b) he need it for illumination during his travels
(c) his method of making fire was laborious (d) he wanted to discover how to make lamp.

According to the passage, the torch probably developed from a
(a) firebrand (b) twig (c) lamp (c) fire

One way early man made lamp was by palling a lighted.

- (a) hollowed stone (b) sea shell (c) vessel
(d) Motten fat
11. Primitive man was least concerned with fire as a
(a) Means of cooking (b) source of light
(c) means of travelling (d) means of warmth.
12. Primitive man carried a firebrand during his journeys mainly
(a) illumination (b) cooking of food
(c) flame preservation (d) warmth
13. The appearance of the pall-bearers was very fascinating
(a) shameful (b) repulsive (c) interesting (c) magical
14. My friend sobbed when her mother died.
(a) smiled (b) chuckling (c) laughed (d) cried
15. The thief prescribed a bold front when he was caught by the police.
(a) He frowned at them in a definite manner
(b) He attacked the policemen boldly
(c) he faced the situation with apparent boldness
(d) He walked up to the policemen
16. A the sight of the ghastly accident, the poor woman's hair stood on end.
(a) The woman was frightened (b) The wind blew the woman's hair upwards (c) The women was unmoved (d) the woman's hair was unkempt
17. I have been able to observe him at Close quarters
(a) at regular intervals (b) within a short space of time (c) in houses nearby (d) in the family house
18. A book on style without abundant examples seems to me as ineffectual as a book on biology without abundant illustrations.
(a) Attract (b,) satisfactory
(c) useless (d) satisfactory
19. Mr. Jackson was most flexible in his instructions
(a) rigid (b) correct (c) stiff (d) upright
20. The lotion recommended by the doctor soothed the player's ankle.
(a) relieved (b) worsened(c) Excited (d) calmed.

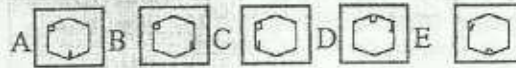
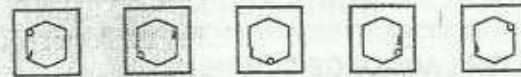
Choose the option nearest in meaning to the underlined word(s)

21. Scientists have discovered that the coherence of living embryos may form monsters.
(a) separation (b) coexistence (c) mis-fortune (d) division

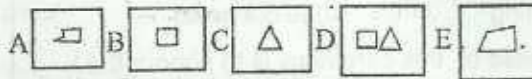
22. This story looks very credible
 (a) unbelievable (b) false (c) believable (c) enormous
23. many young ladies art fastidious about fashion
 (a) concerned (B) deprived
 (c) critical (d) ridiculous
24. The visitor spoke in a cheery and hilarious tone with his host for hours.
 (a) Format (B) cheerful (c) angry (d) frozen.
25. Instead of paying dividends to t shareholder bogus company goes into liquidation.
 (a) weak (b) counterfeit
 (c) genuine (d) partnership.

APTITUDE TEST(SCIENCE) 2007/2008

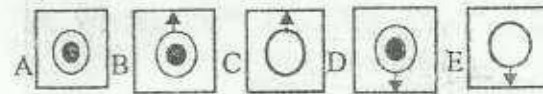
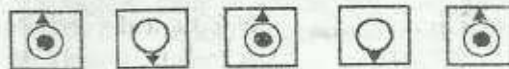
1. If u is an even integer, which of the following must be an odd integer?
 (a) $5u - 2$ (b) $u - 4$ (c) $3(u + 1)$ (d) $u/3$ (e) u^2
2. A computer programme uses a three-digit code to represent apples and oranges. The same program uses a two-digit code to represent carrots. How many digits of code does the computer programme require to
 (a) 22 (b) 19 (c) 20 (d) 8 (e) 24
3. If a number N is divisible by both 4 and 6, then which of the following can be true?
 (a) N is a negative number (b) N is a multiple of 12 (c) N is divisible by 3 (d) all of the these (e) none of these
4. Three men-sam, cam and Laurie are married to Carrie. Billy and Tina, but not necessarily in the same order, sam's wife and billy's husband play Carrie and Tina's husband at bridge. No wife partners her husband and Cam does not play bridge. Who is married to Cam?
 [a] Billy [b] Tina [c] Carrie [d] Sam
5. At 6 O'clock ticks 6 times. The time between first and last ticks is 30 seconds. How long
 (a) 66 seconds (b) 90 seconds (c) 32 seconds (d) 72 seconds
6. A certain street has 1000 buildings. A sing-maker is contracted to number the houses from 1 to 1000. How many zeros will be need?
 (a) 124 (b) 1000 (c) 100 (d) 192
7. If a certain number is doubled and the result is increased by 7, the number obtained is 19. What is the original number?
 (a) 21 (b) 8 (c) 12.5 (d) 2.5 (e) 6



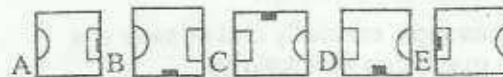
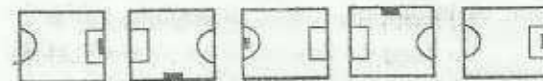
9



10



11



12. Find the missing number in the series 4, 3, 5, 9, 12, 17....
 (a) 32 (b) 30 (c) 24 (d) 26
13. Find the next letter in the series B E H K
 (a) L (b) M (c) N (d) O
14. Three friends divided some bullets equally. After all of them shot 4 bullets the total number of bullets remaining is equal to the bullets each had after division. Find the original number divided
 (a) 16 (b) 18 (c) 14 (d) 12
15. If you take a marker and start from a corner on a cube, what is the maximum number of edges you can trace across if you never trace the same edge twice, never remove the marker from the cube, and never trace anywhere on the cube, except for the corners and edges?
 (a) 9 (b) 6 (c) 3 (d) 12
16. One of Mr. Bajaj, his wife, their r son and Mr. Najaj's mother is an Engineer and another is a Doctor. If the Doctor is a male, then the Engineer is a male. If the engineer is younger than the Doctor, then the Engineer and the Doctor are not blood relative. If the Engineer is a

female then she and the Doctor are blood relatives. Can you tell who is the Doctor and the Engineer?

- (a) Mr. Baja is the Engineer and either his wife or his son is the Doctor (b) Mr. Bajaj's wife is the Engineer and Mr. Baja is the Doctor
(c) Mr. Baja's wife is the Engineer and Mr. Baja's mother is the Doctor (d) Mr. Bajaj's son is the Engineer and Mr. Baja's wife the Doctor

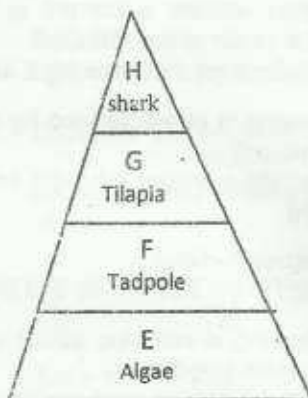
17. Sadness is to happiness as defeat is to ...
(a) joy (b) victory (c) tears (d) victor
18. Paper is to timber as ... is to hide
(a) tree (b) ox (c) animal (d) leather
19. If the average (arithmetic mean) of 8, 12, 14, and Q is 18 then Q =?
(a) 38 (b) 22 (c) 18 (d) 21
Choose the pair of words that best completes the sentence below
20. (a) revision (b) revision (c) revision (d) revition
21. (a) inconvenience (b) inconvenience
(c) inconvenience (d) inconvenience
22. Which of these is the mission word in Kick, ..., walk
(a) throw (b) toes (c) shin (d) feet
23. Which of these is the mission word in Key, walk
(a) lock (b) stand (c) board (d) stone

Which of these words completes the sentence in the way that makes most sense? he avoided...(24)... because he was....(25)...

24. (a) redundancy (b) indispensable
(c) redundancy (d) indispensable
25. (a) redundancy (b) indispensable
(c) redundancy (d) indispensable

Use the figure below to answer question 1 and 2

GENERAL PAPER 2007/2008



1. Which level of the pyramid has the highest total stored energy?
(a) E (b) F (c) G (d) H
2. Which organism in the pyramid functions as a tertiary consumer
(a) Algae (b) Tadpole (c) Tilapia (d) Shark

Study carefully the following stages of reproduction in birds and use it to answer questions 3 and 4

- I - building of nest
II - courtship display
III - parental care
IV - mating
V - laying of eggs and hatching

3. The correct order/sequence for reproduction in the birds is:
(a) I, II, IV, V, III (b) II, IV, I, V, III (c) II, IV, V, I, III (d) I, II, IV, V, III
4. The stage of development that involves displays is:
(a) I (b) II (c) IV (d) III
5. The anatomical evidence usually used in support of the evolutionary relationship among whales, humans birds and dogs is the possession of;
(a) thick skin (b) pentadactyl limb
(c) tail (d) epidermal structure
6. The following are connected with the movement of a reflex action (1) central nervous system (2) muscle (3) skin (4) sensory nerve (5) motor nerve . which of the following sequence indicates a correct path/
(a) 1-2-3-4-5 (b) 3-4-1-5-2 (c) 2-1-4-5-3 (d) 3-4-1-2-5
7. The correct pathway of movement of materials in the kidney is:
(a) glomerulus-bowman's capsule-loop of Henle-collecting duct- pelvis
(b) glomerulus -loop of Henle - collecting duct - Bowman's capsule-pelvis
(c) Bowman's capsule-glomerulus-loop of Henle-collecting duct- pelvis
(d) Bowman's capsule-loop Henle-Glomerulus-collecting duct-pelvis
8. Which of the following is not characteristic feature of a dicotyledonous plant?
(a) their seeds have two cotyledons
(b) the leaves show parallel venation
(c) their root system is the tap root type
(d) the leaves show network venation
9. In a cross between a red-flowered plant and a white flowered plant product pink flowered plants, the result can be described as an example of

- (a) partial recessiveness (b) incomplete dominance (c) complete dominance (d) out breeding
10. The maize grain is regarded as a fruit and not a seed because:
 (a) it is covered by a shunt of leaves
 (b) the testa and fruit wall fuse after fertilization
 (c) it has both coleorhiza and coleoptiles
 (d) the pericarp and seed coat are separate
11. A tissue can best be defined as:
 (a) an aggregate of similar cells (b) an aggregate of cells performing a similar function
 (c) an aggregate of similar cells performing the same function (d) a mixture of different cell types performing the same function
12. A major different between Platyhelminthes and coelenterate is that Platyhelminthes:
 Vcccc
 (a) are multicellular (b) have developed a mesoderm (c) reproduce sexually (d) reproduce asexually
13. An element Z contained 90% of $^{16}_8Z$. Its relative atomic mass is
 (a) 16.00 (b) 16.2 (c) 17.00 (d) 17.8
14. Oil spillage in ponds and creeks can be cleaned up by:
 (a) burning off oil layer (b) spraying with detergent (c) dispersal with compressed air
 (d) spraying with hot water
15. The best treatment for a student who accidentally poured concentrated tetraoxosulphate (VI) acid on his skin in the laboratory is to wash the skin with
 (a) cold water (b) sodium hydroxide solution
 (c) iodine solution (d) sodium trioxocarbonate (IV) solution
16. What process would coal undergo to given coal gas, coal, air, ammonical liquor and coke. (a) steam distillation (b) destructive distillation (c) liquefaction (d) hydrolysis
17. Which of the following represents ethylethanoate?
 (a) $CH_3CH_2CO_2CH_3$ (b) $CH_3CO_2CH_2CH_3$
 (c) $CH_3CH_2COCH_2CH_3$ (d) $CH_3CH_2COCH_2CH_3$
18. A correct electrochemical series can be obtained from K, Na, Ca, Al, Mg, Zn, Fe, Pb, H, Cu, Hg.
 A. Al and Mg B. Zn and Fe C. Zn and Pb. D. Pb and H
19. The function of sulphur during the vulcanization of rubber is to
 (a) Act as a catalyst for the polymerization
 (b) Convert rubber from thermosetting to thermoplastic (c) Forms chains which binds rubber molecules together (d) Shorten the chain length of rubber polymer
20. When $50cm^3$ of a saturated solution of sugar (molar mass 342.0g) at $40^\circ C$ was evaporated to dryness, 34.2g of dry solid was obtained. The solubility of sugar at $40^\circ C$ is
 (a) $10.0molesdm^3$ (b) $7.0molesdm^3$
 (c) $3.5moles cm^3$ (d) $2.0moles dm^2$
21. A brand of ink containing cobalt (II) and Iron (II) ions can best be separated into its various components by
 (a) Fractional distillation (b) Fractional crystallization (c) sublimation (d) chromatography
22. Which of the following statements is correct?
 (a) the average kinetic energy of a gas is directly proportional to its temperature (b) the collisions of molecules with each other are inelastic.
 A. $CH_3CH_2CH_2CH_3$ B. $CO_3CH_2CH_2CH_3$
 C. $CH_3CH_2CHCO_2CH_3$ D. $CH_3CH_2COCH_2CH_3$
23. The oxidation state of Cr in $K_2Cr_2O_7$ is
 (a) +2 (b) +6 (c) +7 (d) +12
24. 5.00g of hydrated salt of barium when heated to a constant weight gave 4.26g of anhydrous salt with a molecular weight of 208. The number of molecule of water of crystallization in the hydrate salt is?
 (a) 10 (b) 8 (c) 5 (d) 2
25. What is the heat energy required to change 10kg of ice to water at $0^\circ C$? take specific latent heat of ice as $3.36 \times 10^6 J/Kg$
 (a) $3.36 \times 10^5 J$ (b) $3.36 \times 10^6 J$
 (c) $3.36 \times 10^7 J$ (d) $3.36 \times 10^8 J$
26. A 50 watt heating coil used for 2 minutes to heat a metal block of 500g and the specific heat capacity of 1.0J per K. the temperature rise is
 (a) $12^\circ C$ (b) $15^\circ C$ (c) $24^\circ C$ (d) $30^\circ C$
27. When a 12 volt automobile battery is connected across an unknown resistor a current of 2.5A results. What is the value of the resistor?
 (a) 48ohms (b) 24ohms (c) 4.8ohms (d) 2.4ohms
28. Which of the following is characterized by a line spectrum of all colours?
 (a) hydrogen light (b) mercury light (c) sodium light (d) white light
29. Covert $80^\circ F$ to degree Kelvin
 (a) 273.0K (b) 312.7K (c) 359.4K (d) 373.0K
30. Which of the following is not true about series connection of resistors in a circuit
 (a) voltage is the same across each resistance
 (b) current is the same through the resistors

- (c) Effective resistance is greater than the highest individual resistances (d) none of these
31. What happens to the electrons in a solid when the electrons are given enough energy?
 (a) they are absorbed (b) they are emitted
 (c) they are scattered (d) they are radiated
32. An object 5cm long is placed 25cm from the pin hole of a camera. What is the distance of the image formed if the image size is 1.5cm long
 (a) 18.75cm (b) 7.5cm (c) 3.75cm (d) 100cm
33. Determine the critical angle of a certain material whose refractive index is 1.5
 (a) 44.2° (b) 41.8° (c) 39.2° (d) 37.0°
34. The position of a particle moving on an x axis is given by $x = 7.8 + 9.2t - 2.1t^3$ where x is in metre and t in seconds. What is its velocity at $t = 3.5s$
 A. 100m/s b. -89m/s c. -73m/s d. 68m/s
35. Which of the following is a fundamental unit?
 (a) joules (b) Newton (c) metre (d) Watt
36. What is the work done when a force of 20N is applied to move an object through a distance of 2m
 (a) 40J (b) 30J
 (c) 20J (d) 10J
37. Velocity and displacement are vector quantities. The respective scalar equivalents of these quantities are:
 (a) Speed and time
 (b) acceleration and distance
 (c) distance and time
 (d) speed and distance
38. Evaluate $\int \pi/2 \cos x dx$
 (a) 1 (b) 3
 (c) 2 (d) 9
 (e) 4.5
39. Evaluate $\int dx$
 (a) $2x + u$
 (b) $x + u$
 (c) $x^2 + 1 + u$
 (d) $3x^2 + 2x + u$
40. $x = 5$ and $y = 6$, then the value of $(8x+4y)^{y/x}$ is (a) 24 (b) 23 (c) 28 (d) 43 (e) 64
41. simplify $\frac{2\sqrt{5} \times 7\sqrt{2}}{\sqrt{14} \times \sqrt{45}}$
 (a) $\frac{2\sqrt{7}}{3}$ (b) $\frac{5\sqrt{2}}{7}$ (c) $\frac{4\sqrt{3}}{2}$ (d) $\frac{6\sqrt{5}}{7}$ (e) $\frac{3\sqrt{2}}{5}$
42. A man sells a car for N420 at a gain of 5%. What did the car cost him?
 (a) N600 (b) N400 (c) N240 (d) N320
- (e) N500
43. Find the area of a trapezium whose parallel sides are 12cm and 10cm and its height is 7cm
 (a) $55cm^2$ (b) $66cm^2$ (c) $77cm^2$ (d) $48cm^2$ (e) $65cm^2$
44. If $A = \begin{bmatrix} 2 & 3 \\ 1 & 2 \end{bmatrix}$ and $B = \begin{bmatrix} 0 & -1 \\ 2 & 3 \end{bmatrix}$ then $2A + 3B$ is
 (a) $\begin{bmatrix} 24 & 23 \\ 21 & 22 \end{bmatrix}$ (b) $\begin{bmatrix} 6 & 8 \\ 3 & 1 \end{bmatrix}$
 (c) $\begin{bmatrix} 4 & 3 \\ 8 & 13 \end{bmatrix}$ (d) $\begin{bmatrix} 2 & 7 \\ 7 & 9 \end{bmatrix}$
45. Simplify $(x + 1/8)^2 - (x - 1/x)^2$
 (a) 4 (b) $2x+3$ (c) 8 (d) $x^2 + 2$ (e) 12
46. Make r the subject of the formula $V = 4/3\pi r^3$
 (a) $4\pi/3$ (b) $3V/3\sqrt{4\pi}$ (c) $r^3/3V$ (d) $r^3/\sqrt{2\pi}$ (e) $3\pi V/4$
47. Two cities A (Lat $60^\circ N$, Long $40^\circ W$) and B (Lat $60^\circ N$, long $20^\circ E$). How far apart are these cities along their common parallel of latitude? Take the radius of the Earth to be 6400Km
 (a) $\frac{3200\pi Km}{3}$ (b) $\frac{6400\pi km}{15}$ (c) $\frac{2340\pi km}{7}$
 (d) $\frac{2340\pi km}{11}$ (e) $\frac{440\pi km}{13}$
48. Factorize $Z^6 - 1$
 (a) $(z+1)(z^2-Z-2)$
 (b) $(2Z+1)(Z-1)(Z+1)$
 (c) $(Z^2-1)(z^3-1)$
 (d) $(Z^2+Z+2) \in (Z+1)(Z-1)(Z^4+Z^2+1)$
49. Solve $8^8 = 0.25$
 (a) $1/4$ (b) $-2/3$
 (c) $2/3$ (d) $-4/7$
 (e) $-3/4$
50. One interior angle of a regular polygon is 160° . How many sides have the polygon? (a) 14 (b) 24 (c) 32 (d) 40 (e)

DELSU POST UTME SCREENING EXERCISE

PAST QUESTIONS

FOR
2006/2007

SURNAME (Capital Letters) _____

OTHER NAMES _____

JAMB REGISTRATION NUMBER _____

PROPOSED FACULTY _____

PROPOSED DEPARTMENT _____

QUESTION PAPER CODE: 9:001:A

TIME: 1 HOUR

1. DO NOT OPEN THE QUESTION PAPER UNTIL YOU ARE ASKED TO DO SO
2. ANSWER SHEETS MUST NOT BE TAKEN OUT OF THE EXAMINATION HALL
3. DO NOT DETACH LEAFLETS
4. SHADE THE CORRECT ANSWER IN EACH QUESTION

SCIENCE , SCIENCE EDUCATION, ENGINEERING, AGRIC.
SCIENCE, COLLAGE OF HEALTH SCIENCE AND DIRECT ENTRY

ALL PROGRAMMES

7
8
9

11

12

13

14

15

16

17.

18.

19.

20.

21.

22.
23
24

2006/2007

Question 1 – 5 choose the option opposite in meaning to the word(s) underlined

1. The doctor's husband is liable for his wife's debts
(a) unanswerable (b) responsible
(c) unquestionable (d) accountable
2. The lotion recommended by the doctor soothed Okon's aching tooth
(a) calmed (b) extracted (c) excited (d) worsened
3. The sun cast its shadow on the wall
(a) reflection (b) rays
(c) resemblance (d) substances
4. He was locked up for night
(a) released (b) punished
(c) remanded (d) locked out
5. The lady acted courageously when thieves attracted her
(a) shyly (b) fearlessly (c) indiscreetly (d) timidly

Read the passage and answer the question as follows:

Mathematics is the language in which the Book of Nature is written. Mathematics is the queen of the sciences. It is universally agreed that mathematics is the backbone of science and technology. For without mathematics the engineer is but an artist or a sculptor. He can build his bridge, attest to its form and beauty, but without mathematics can not guarantee its reliability to serve the purpose for which it is built. Mathematics is indeed the science of sciences. It is also art of all arts, it is right, legitimate and defensible to consider mathematics as an Art. The poet, the musician, the artist and the mathematician have a lot in common. Fundamental to all their studies and works is their common interest in the logical study of related concepts and objects to form patterns which will produce beauty, harmony and order. Thus the poet arranges words to produce a pattern called poetry; the musician arranges sounds to produce a pattern called music, the artist arranges colours to produce a pattern called painting and the mathematician arranges abstract ideas into a pattern, using symbols, to produce equations. Each of these patterns – the poem, the music, the painting and the equation must stand up to the test some order, harmony and beauty. So if mathematics is not an art what is art?

6. 'Mathematics' is written with a capital M in this passage because
(a) the writer is a mathematician
(b) the writer does not know how to use punctuation correctly (c) the writer wants to distinguish between a concept and subject
(d) it is the normal way of writing about the sciences (e) the writer is confused

7. The last sentence of the passage, 'So if mathematics is not an art what is art? Is a (a) question posed for the reader to answer (b) statement put in the form of a question (c) question combined with a statement (d) mathematical equation stated in words (e) pattern which illustrates beauty, harmony and order in language.
8. Mathematics can be considered as a form of art because:
(a) its main principle is made use of by the arts (b) it involves drawing of figures (c) it is form of fine arts (d) it is type of graphic arts
9. The views expressed in this passage belong to
(a) JAMB (b) Artist (c) Mathematicians (d) the poet & the author of the passage
10. The expression 'Mathematics is the queen of the science' contains
(a) a contradiction (b) an analogy (c) an irony (d) a lie (e) nonsense
11. We will surely buy this idea of introducing an entirely new product
(a) pay (b) trade in (c) barter
12. This year's harvest is surplus
(a) enough for our need (b) limitless (c) more than enough (d) plenty
13. The new vice-chancellor's immediate concern was to tide over the major difficulties the moment.

NO OPTION

14. The minister's anger was aggravated by the news of the disaster
(a) abated (b) magnified (c) intensified (d) impended
15. The lawyer gave evasive answers to all the questions
(a) unintelligent (b) ineffective (c) unreliable (d) equivocal
16. Olu promised to look out for her next time he is town
(a) watch (b) visit (c) greet (d) take care of
17. Thompson was a prosecution witness at the court hearing
(a) false (b) reliable (c) government (d) trial
18. The beggar's takings snow-balled every hour
(a) grew (b) turned while (c) grew into a ball (d) turned into now
19. 'Watch it' you could be followed said the robber
(a) look around (b) be sober (c) be vigilant (d) look out

20. Look at the Tell-tale signs of bettering on her
 (a) confirming looks (b) suspicious marks (c) revealing marks (d) signifying marks
21. The armed robbers who raider passengers on the Expressway came to grief when they had a shoot out with the police to stay
 (a) came to a bad end (b) became grieved (c) encountered grief (d) came to a dead end
- Many of the workers hired for ring the furnace had themselves fired as a result of the unfortunate accident.
 (a) got themselves burned accidentally (b) jumped into the fire themselves (c) got themselves sacked from their jobs (d) were sacked from their jobs.
23. The new educational system look off this school year
 (a) went off (b) continued (c) began (d) resumed
24. His attempts were nipped in the bud
 (a) unsuccessful (b) on short (c) frustrated (d) disqualified
25. The preacher has made good his promise to visit some of his converts today
 (a) fulfilled (b) abided (c) seen to (d) accessed

APTITUDE TEST

Choose from the word lettered A-E the one which most suitably fills the gap in the sentence.

1.is better than mine
 (a) your's (b) yours (c) your's (d) yaws

Choose the word with the correct spelling from Question 2

2. (a) Offered (b) offered (c) Oferred (d) offered [E]Offared
3. LITERATE
 (a) virus (b) education(c) learned (d) uneducated (e) foolish
4. POSSESS
 (a) OSSEPSS (b) PSESSOE (c) ESSOPSS (d) SOPSESS (e) SOPSOES
5. WATER
 (a) WAWER (b) TRAWE (c) AERTW (d) ERTWR (e) EARTW
6. What will be appropriate in the blank box marked X?

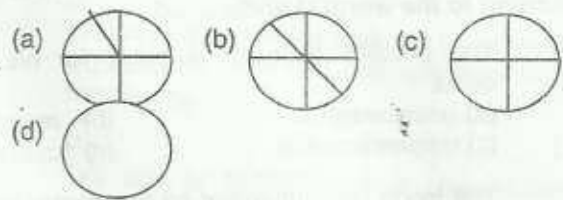


- (a) (b) (c) (d) (e)

9. Which of the following does not belong to the group?

- (a) aeroplane (b) ship (c) ship (d) motor vehicle (e) motor cycle

10.



11. Which one of the following is not like the other?
 (a) Bear (b) Cow (c) snake (d) dog (e) Tiger

APTITUDE TEST

12. All of the following countries except one are not found in Africa (
 a) Libya(b) Brazil (c) Colombia (d) Uruguay(e) Mexico
13. Which of the following is different from the others?
 (a) dog (b) car (c) cat (d) bug (e) fish
14. CAACCAC is to 3113313 as CACAACA is to
 (a) 13133131 (b) 13133313 (c) 31311131 (d) 3131131 (e) 31313113
15. A person who guards the prisoners is called ___
 (a) warder (b) army (c) police (d) warden (e) court messenger
16. Which one of the following is least like the others?
 (a) wood (b) copper (c) iron (d) tin (e) lead
17. Solve the equation $4x + 8 = x + 14$. What is the value of x?
 (a) 2 (b) 3 (c) 4(d) 5 (e) 6
- Use the set of data below to answer question 18 and 19
 6,5,3,6,3,2,6,4,5,6 and 4
18. What is the median of the data?
 (a) 4.5 (b) 6.5 (c) 5.5 (d) 5 (e) 6
19. Find the mode of the distribution
 (a) 4 (b) 4.5 (c) 5 (d) 5.5 (e) 6
20. The area of square of side 51cm is
 (a) 3501cm^2 (b) 1501cm^2 (c) 1601cm^2 (d) 2601cm^2 (e) 2501cm^2

GENERAL PAPER

1. A ray of light generally bent towards the normal when it passes from air into glass because
 (a) light has a greater velocity air than in glass (b) glass is optically less dense than air (c) the angle of incidence is greater than the critical angle (d) the critical angle is greater than the angle of incidence
2. An object if height 1.7m located 0.5m in front of a pin-hole camera of length 15cm produces an image of height

- (a) 0.30m (b) 0.35m (c) 0.40m (d) 0.51m
3. A ray of light from water is incident at 49° on the water air boundary. What is the angle of refraction in air (Refractive index for air to water is 1.33)
(a) 42 (b) 45 (c) 60 (d) 90
 4. An electric motor running off the mains ($r = 220\text{wts}$) develops a back e.m.f of 205wts. What is the armature current if the armature resistances is $10\text{hm}\Omega$
(a) 5amp (b) 10amp (c) 15amp (d) 20amp
 5. The vertical plane containing the magnetic axis of a freely suspended magnet at rest under the action of the earth's magnetic field is called the
(a) magnetic meridian (b) magnetic equator
(c) neutral plane (d) magnetic plane
 6. A thin sheet of paper can absorb one of the following types of radiation
(a) x-rays (b) gamma rays (c) beta particles
(d) alpha particles
 7. A child with blood group genotype different from those of both parents and with a mother of genotype OO, can only have a father of genotype
(a) A (b) B (c) AB (d) OO
 8. is a density dependent factor that regulate the population size of organism
(a) sudden flood (b) drought
(c) fire outbreak (d) disease
 9. The anatomical evidence usually used in support of the evolutionary relationship among whales, humans, birds and dogs is the possession of
(a) thick skin (b) pentdactyl limb (c) tail (d) epidermal structure
 10. The following are connected with the movement of a reflex action (1) central nervous system (2) muscle (3) skin (4) sensory nerve (5) motor nerve . which of the following sequence indicates a correct path/
(a) 1-2-3-4-5 (b) 3-4-1-5-2 (c) 2-1-4-5-3 (d) 3-4-1-2-5
 11. Which of the following diseases, can be contracted in areas with fast flowing river?
(a) schistosomiasis (b) elephantiasis
(c) Onchocerciasis (d) syphilis
 12. Which of the following groups of factors is completely abiotic?
(a) salinity, tide, plankton turbidity (b) temperature, pH, soil, insect (c) wind, altitude, humidity, light (d) conifers, wind, pH, rainfall
 13. synthetic rubber is made by polymerization of
(a) 2methylbuta-1,3-diene (b) methylbuta-1, 2 diene (c) 2 methylbut - 1-ene (d) 2-methylbut-2-ene
 14. A gas X diffuses twice as fast as gas Y under the same conditions. If the relative molecular mass of X is 28, calculate the relative molecular mass of Y
(a) 112 (b) 120 (c) 56 (d) 14
 15. The processes which return carbon(IV) oxide to the atmosphere include
(a) respiration, decay and combustion
(b) photosynthesis, respiration and transpiration
(c) ozone depletion, combustion and decay
(d) photosynthesis, decay and respiration.
 16. 25cm^2 of a 0.2moldm^{-3} solution of Na_2CO_3 requires 20cm^2 of a solution of HCl for neutralization. The concentration of the HCl solution is
(a) 0.5moldm^{-3} (b) 0.6moldm^{-3} (c) 0.2moldm^2 (d) 0.4moldm^2
 17. The flurring of kettles is caused by the presence in water of
(a)calcium hydro xocarbonate(IV) B calcium trioxocarbonate(IV) C. calcium hydroxide D calcium trioxocarbonate(IV)
 18. In the Baber process for the manufacture of Ammonia, the catalyst commonly used is finely divided
(a) vanadium (b) platinum (c) iron (d) copper
 19. An iron ore is known to contain 70.0% Fe_2O_3 . The mass of iron metal which can be theoretically be obtained from 80kg of the ore is (Fe = 56, O = 16)
(a) 35.0kg (b) 39.2kg (c) 70.0kg (d) 78.4kg
 20. **NO QUESTION**
 21. Simplify $\frac{\sin^2x}{1+\cos x} + \frac{\sin^2x}{1-\cos x}$
(a) \sin^2x (b) \cos^2x (c) 2 (d) 1
 22. The circle $x^2+y^2+3x-2y-7 = 0$ passes through the point
(a) (1,-1) (b) (1,1) (c) (3,1) (d) (-3,1)
 23. If two fair dice are thrown together, what is the probability of obtaining at most a score of 10?
(a) 1/6 (b) 1/12 (c) 5/6 (d) 11/12
 24. If ${}^nC_3 = {}^8C_{12}$. Find n
(a) 5 (b) 17 (c) 12 (d) 60
 25. The curve $y = x^2+5x+ 6$ intercepts the co-ordinate axes at
(a) (-3,0),(2,0),(0,6) (b) (-3,0),(-2,0),(0,6) (c) (3,0),(2,0),(0,6) (d) (-3,0),(-2,0),(6,0)

26. If the distance between the points (x, -3) and (2x, -4) is $\sqrt{10}$ find x
a. 10 b. 9 c. 3 d. 1
27. Which of the these is NOT a vector quantity?
(a) the total weight of the famous building
(b) the angular momentum of the earth's rotation
(c) the earth's magnetic field
(d) the internal energy of a gas
28. The density of a solid is defined as
(a) weight per unit volume of the solid
(b) mass per unit volume of the solid
(c) volume per unit mass of the solid
(d) mass of the solid
29. Two forces 12N and 2N act in opposite directions on a body of mass 10kg. what is the acceleration of the body?
(a) 0.0ms^{-1} (b) 0.80ms^{-2} (c) 1.0ms^{-2} (d) 1.20ms^{-2}
30. Which of the following liquids will contract when heated between 50°C and 60°C
(a) Kerosine (b) Alcohol (c) mercury (d) none of these
31. What is the change in length of 10m of copper when it is heated from 10° to 70° (coefficient of linear expansion of copper = $0.00017^{\circ}\text{C}^{-1}$)
(a) 0.0002m (b) 0.0010m (c) 0.0017m (d) 0.0102m
33. The maize grain is regarded as a fruit and not a seed because:
(a) it is covered by a sheath of leaves
(b) the testa and fruit wall fuse after fertilisation
(c) it has coleorhiza
(d) it has both endosperm and cotyledon
(e) the pericarp and seed coat are separate
34. In plant cells, the chloroplast are located
(a) inside the cell wall (b) outside the protoplasm
(c) within the vacuole (d) within the cytoplasm
35. Annelid's differ from nematodes in that they
(a) exhibit bilateral symmetry
(b) are triploblastic
(c) within the vacuole (d) within the cytoplasm
36. The group of insects that undergo complete metamorphosis is
(a) cockroaches, grasshoppers and bees
(b) houseflies, beetles and cockroach
(c) houseflies, bottles and butterflies
(d) aphids, butterflies and grasshoppers
37. Which of the under listed set is a source of air pollution
(a) industrial chimneys, burnings fossil oils and river dams
(b) sulphur mines, vehicle exhausts and aerosols
(c) sulphur dioxide, acid and pesticides
(d) sewage, smoke and oil vehicles
38. A major difference between Platyhelminthes and coelenterate is that Platyhelminthes
(a) are multicellular (b) have developed at mesoderm
(c) reproduce sexually (d) reproduce asexually
39. The IUPAC nomenclature for hydrocarbon below is
$$\begin{array}{c} \text{CH}_3 - \text{CH} - \text{CH} = \text{CH}_2 \\ | \\ \text{CH}_3 \end{array}$$

(a) 1, 2-dimethylprop-2-ene (b) 1, 1-dimethylprop-2-ene
(c) 2-methylbut-3-ene (d) methylbut-1-ene
40. How many moles of limestone will be required to produce 5.6g of CaO? (Ca = 40, C = 12, O = 16)
(a) 0.20mol (b) 0.10mol (c) 1.12mol (d) 0.5mol
41. All element X has 127, neutrons at 82 electrons, its atomic number is
(a) 82 (b) 127 (c) 209 (d) 105
42. If concentrated tetraoxosulphate (VI) acid is added to sugar and warmed gently, the sugar changes from white to brown and finally to a black mass carbon. In this reaction the acid acting as
(a) dehydrating agent (b) oxidizing agent
(c) hydrolyzing agent (d) reducing agent
43. All acid is said to be weak if
(a) its ions are so completely dissociated that they easily drift apart
(b) the acid is not corrosive
(c) its ion move slowly in solution
(d) its ions are incompletely
44. In which of the following pairs of elements is autotrophy exhibited by each element?
(a) phosphorus and hydrogen (b) oxygen and chlorine
(c) sulphur and nitrogen (d) oxygen and sulphur
45. Simplify $\frac{1\frac{1}{4}}{2 + \frac{1}{4} \text{ of } 28}$
(a) $\frac{4}{45}$ (b) $\frac{5}{36}$ (c) $4\frac{3}{8}$ (d) $11\frac{1}{4}$
46. Convert 13.31 to a number in base 2
(a) 111.1011_2 (b) 1011.111_2 (c) 101.101_2 (d) 111.1101_2
47. Factorise $b^2 - b - t^2 - t$
(a) $b(b-1) - t(t-1)$ (b) $(b+1)(b-t)^2$ (c) $(b+1)(b-t-1)$
(d) $(b-t)(b+t-1)$
48. Find the root of the equation $3x - 5 = 2x^2$
(a) 1, $2\frac{1}{2}$ (b) -1, $-2\frac{1}{2}$ (c) $-1, 2\frac{1}{2}$ (d) $-1\frac{1}{2}, 2\frac{1}{2}$
49. If $3x + 3y - 1 = 0$ and $y - 2x = 11$, find (x+y)
(a) $-\frac{2}{3}$ (b) $\frac{1}{9}$ (c) $\frac{1}{3}$ (d) $\frac{2}{30}$
50. If T is inversely proportional to U and T = 15, when U = 12, what is the value of U when T = 60?
(a) 4 (b) 5 (c) 3 (d) 6

DELSU POST UTME SCREENING EXERCISE

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2. ANSWER SHEETS MUST NOT BE TAKEN OUT OF THE EXAMINATION HALL
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4. SHADE THE CORRECT ANSWER IN EACH QUESTION

SCIENCE , SCIENCE EDUCATION, ENGINEERING, AGRIC.
SCIENCE, COLLAGE OF HEALTH SCIENCE AND DIRECT ENTRY

ALL PROGRAMMES

2005/2006 English language

Fill in the blank space with the verb if in! agrees with the subject in each of the following sentences:

1. how your family ?
(a) is (b) are
2. The youngest of the three brothers ... training to be a doctor
(a) is (b) are
3. Two panes of glass in the window ... broken.
(a) is (b) are
4. The ambassador and his wife ... traveling on the boat.
(a) is (b) are
5. The ambassador or his wife traveling on the boat.
(a) is (b) are
6. One of the ambassador's wives traveling on the boat.
(a) is (b) are

Read carefully the following passage and answer the question below' it.

PASSAGE

Whenever I have had to ask the question why have not left this country for good, my answers rush to my mind, each striving to be recognized of the popular slogan that this country belongs to us all for which reason ever Nigerian must joint hands in trying to salvage it. I try to dismiss the argument by reasoning that it is foolhardy attempting to lend a helping hand where one's services are apparently not required. Then I am reminded that since I left the country in a hurry' just because of our political instability and economic hardships, my commitments to my family and extended family at home would suffer. I reply by saying that as soon as I got settled abroad, I would I arrange for my family to join me. . Other financial problem at home would be taken care of by my regular remittance . Would I then never think of going back home in future? Not until the situation in the country improved considerably, I would answer. And who did I expect in carry on with the last of national rehabilitation when the likes of me are all out of the country those who messed up the country in the first place, I would argue. And so on. This dialogue of self has been going on for the last ten years or so, meanwhile, I am yet to leave the country.

When I wonder how many people share my kind of mental experience . I realize that we must be very few. For not many had the slightest opportunity of absconding from the country. they do not have the place to run to. nor do they have the means of escape. Even among the elite who consider this possibility the

uncertainty of a future outside their father land intimidates, And so we all end up staving and mumbling.

7. To leave the country 'for good' means leaving the country
A. Unexpectedly
B. For better Opportunities
C. Permanently
D. Now that things are not yet, good
8. The expression 'each striving to be recognized as being the most cogent' means each a]trying to prove superiority
B. Determined to prove that it is the most acceptable
C. Resolved not to be dislodged
D Attempting to show that it is the brightest
9. The writer argument that it is foolhardy to offer one's service where such as apparently not required implies that in Nigeria
A. 'The authorities do not solicit for the services of the citizens B. mediocrity is the order of the day C. The authorities are indifferent to offers of help from the citizens D. To offer to sever the country is dangerous
10. The last paragraph of the passage reveals his:
A. The writer is a member of the elite which alone indulges in this kind of thinking B. People in the country only end up arguing among themselves C. The majority of citizens in the country does not possess the ability to argue the was the other does D. Deciding to Leave the country is a hard as deciding to stay

FILL the blank space in each of the following sentence with the most appropriate simple conjunction

11. Ejiro went to the farm,..., fetched some plantain
[a] and (b) but (c) or (d) nor
12. I don't like coffee -----does he?
(a) and (b) but (c) or (d) nor
13. She owns a car never drive
(a) and (b) but (C) or (c) nor
14. have been to the hospital seen the doctor
(a) and { b) but (c) or (d] nor
15. You had better hurry----- the bus will go
(a) and (b) but (c) at (d) nor

CHOOSE THE CORRECT SPELLING IN EACH OF THE FOLLOWING PAIRS OF WORD

16. (a) Concealing . (b) Coneallmg
17. (a) beginning (b) begining

18. (a) debating (b) debating
19. (a) bloodinnding (b) Bleeding
20. (a) offering (b) offering
 Choose from a to d the correct way of reporting each of the quoted sentence below
21. "I Don't work too hard" (The doctor speaking to Mr. Nortey) (a) The doctor spoke to Mr. Nortey that he should not work too hard (b) The doctor advised Mr. Nortey not to work too hard (c) The doctor told Mr Nortey, don't work too hard (d) The doctor said: "Mr Nortey don't work too hard"
22. "I can hear the burglar in the next room" (Mrs. Nani speaking to her husband).
 (a) Mrs. Nani whispered to her husband that she could hear the burglar in the next room (b) Mrs. Nani whispered to her husband that she an hear the burglar in the next room (c) Mrs. Nani whispered to her husband that she heard the burglar in the next room (d) Mrs. Nani whispered to her husband that she could hear the burglar in the next room,
23. "Help" (The drowning man spoke).
 (a) the drowning man esclaimed for help
 (b) The drowning man begged for help
 (C) The drowning man ordered For help
 (d) The drowning man shouted for help
24. "If you don't apologize to Mrs. Oseji, you will go to bed without your supper". (Salifu's. mother speaking to Satifu).
 (a) Salifu's mother advised that if Sahifu dont apologize to Mrs. Oseji. she will go to bed without her supper (b) Salifu's mother advised that if Salifu didn't apologize to Mrs. Oseji, she will went to bed without her supper (c) Salifu's mother threatened that if Salifu don't apologize to Mrs. Oseji. she will go to bed without her supper. (d) Salifu's mother threatened that, if Salifu didn't ' apologize to Mrs. Oseji she would go to bed without her supper.
25. "I am sorry I was rude to Mrs. Oseji" (Salifu speaking).
 (a) Sahifu complained that she was sorry she was rude in Mrs. Osqji. (b) Satifu protested that she was sorry she was as rude to Mrs. Oseji (c) Sahfii mumbled that she was sorry she was rude to Mr's. Oseji (d) Salifu pointed out that she was sorry she was rude to Mrs. Oseji

CHEMISTRY 2005/2006

1. A major effect of oil pollution in coastal water is
 (a) Destruction of marine life (b) Desalination of the water (c) Increase in the acidity of the water (d) Detoxification of the water

2. Chromatography is used to separate components of mixtures which differ in their rates of
 (a) Diffusion (b) Migration
 (c) Reaction (d) Sedimentation
3. Neutralization involves a reaction between H₂O and
 (a) Cl (b) OH (c) NO₃ (d) CO₂
4. 1.2f of electricity are passed through electrolytic cells containing Na⁺. CU⁺ and AC in series. How many moles of each metal would be formed at the cathodes of each cell?
 (a) 0,6 molts of Na, 1.2 motes of Cu and 1.2 moles of Al
 (B) 1.2 moles of Na, 0.6 moles of Cu and 0.4 moles of Al
 (c) 1.2 aides of Na, 2.4 moles of Cu and 2.4 moles of Al
 (d) 1.2 moles of Na 2.4 moles of Cu and 3.6 moles of Al
5. An element X has 127 neutron and 32 electrons, its atomic number is:
 (a) 209 (b) 45 (c) 82 (d) 127
6. Pilosphorus is stored under water to prevent it from
 (a) dehydrating (b) Catching the
 (c) Smelling (d) Being insect
7. The electronic configuration of an element is 1S² 2S² 2P^{3m} 3³ 3P³. How many unpaired electrons are these in the element? (a) 5 (t) 4 (c) 3 (d) 2
8. In two separate experiments. 0.36g and 0.71g chlorine combined with a metal X to give and Z respectively. An analysis showed that Y and Z contain 0.20g and 0.40g of X respectively. The data above represents the law of:
 (a) Multiple proportion (b) Constant composition
 (c) Conservation of mass (d) reciprocal proportion.
9. Which of the following is NOT used as a raw material in the solvary process
 (a) Aionia (b) Sodium chloride (c) Calcium trioxocarbonate (iv) (d) Sodium trioxocarbonate (iv)
10. 4.0g of sodium hydrxide in 2.50cm² of solution contains (a) 0.40 moles per dm³ (B) 0.10 moles per dm³ (c) 0.04 moles dm³ (d) 0.02 moles per dm³ (Na = 23. H = 1, O = 16).
11. In the process of silver-plating a molar M, the metal at is the
 (a) Anode and a direct current issued

- (b) cathode and an alternating current is used (c) Anode and an Alternating current is used (d) Cathode and a direct current is used
12. Which of the following is NOT true of metals?
 (a) They are good conductor of electricity (b) They ionize by electron less (c) Their oxides are acidic (d) They have high melting points.
13. An example of a polysaccharide is
 (a) Dextrose (B) mannose (c) glucose (d) starch
14. Starch can be converted to ethyl alcohol by
 (a) Distillation (B) Fermentation (c) Isomerization (d) Cracking
15. The formula of the compound formed in a reaction between a trivalent metal X and I
 (a) MX (b) M_3X_4 (c) M_4X_4 (d) M_4X_3
16. In the Haber process for the manufacture of ammonia, the catalyst commonly used is finely divided
 (a) Copper (B) Iron (C) Lead (d) Mercury
17. Clothes should be properly rinsed with water after bleaching because:
 (a) The bleach decolorizes the clothes (b) Chlorine reacts with particles during bleaching (c) The clothes are decolorized during bleaching (d) Hydrogen chloride solution is produced during bleaching.
18. In the periodic table, what is the property that decreases along the period and increases down the group?
 (a) Atomic number (b) Electronegativity (c) Ionization potential (d) Atomic radius
19. Which of the following metals is passive to concentrated nitric acid?
 (a) Iron (b) Tin (c) Copper (d) Zinc
20. The repeating unit in natural rubber is
 (a) alkyne (b) Isoprene (c) n-propene (d) neoprene
21. What process would coal undergo to give coal gas, coal tar, ammoniacal liquor and coke?
 (a) Steam distillation (b) Destructive Distillation (c) Liquefaction (d) Fractional distillation
22. **NO QUESTION**
23. Which of the following represents saponification?
 (a) Reaction of alkanes with acid (b) Reaction of carboxylic acids with sodium hydroxide. (c) Reaction of carboxylic acids with alcohols (d) Reaction of alkanes with sodium hydroxide
- 24.

25. Oil spillage in ponds and creeks can be cleared up by
 (a) Burning off the oil layer (b) Spraying with detergent (c) Dispersal with compressed air (d) Spraying with hot water

BIOLOGY

1. Deoxygenated blood flows into the right and left lungs through
 (a) Pulmonary vein (b) Vena Cava (c) Pulmonary artery (d) Subclavian vein
2. The crown of the mammalian tooth is covered with
 (a) dentine (b) dentine (c) caries (d) enamel
3. The dental formula $\frac{3}{3} \frac{C1}{1} \frac{PM2}{4} \frac{M2}{3}$ is that of a
 (a) goat (b) rabbit (c) man (d) dog
4. Green plants are distinguished from other living organisms by the ability to
 (a) Make use of water (b) manufacture their own food (c) Make use of oxygen (d) respond to sunlight
5. One significant difference between roots and stem is that
 (a) Branch roots originate in the pericycle while branch stem do not (b) Stems are positively geotropic while roots are negatively geotropic (c) Stems are always above the ground while roots are always below the ground (d) Stems are sometimes used for storage while roots are never used.
6. Insects have power of conserving water because
 (a) The cuticular cuticle is impregnated with tanned protein (b) Nitrogenous waste is excreted as urea (c) Chitin is impermeable to water (d) The cuticle is covered with wax

Fig. 1 shows the externals of a bony fish. Use it to answer question 7 - 9

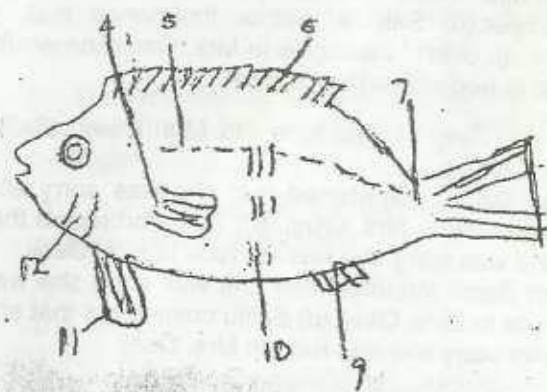


Fig. 1: External of a fish

7. The part number 12 is

- (a) Pectoral fin (b) Scale (c) Opercula plate (d) gill plate
8. During movement from one point to another Part is not involved
 (a) 7 (b) 5
 (c) 3 (d) 10
 9. The function of the part labeled 10 is
 (a) feeding (b) Camouflage
 (c) Protection (d) fighting
 10. The features that distinguished a toad or frog from a fish is the absence of
 (a) lungs (b) a tail
 (c) skin gland (d) Scales
 11. The autogenously substance that is exerted by birds in-order so conserve water is
 (a) Urea (b) Uric acid
 (c) Nitric acid (d) Ammonia
 12. The best method of propagating sugarcane is by
 (a) Seed sowing
 (b) Layering
 (c) Grafting
 (d) Stem cutting
 13. in *Mucor or Rhizopus*, Carbohydrate is absorbed in the form of
 (a) Starch (b) Sucrose
 (c) Glucose (d) Glycogen
 (e) Arabinose
 14. Amoeba moves by means of
 (a) Cilia (b) Flagella
 (c) Psuedopodia (d) Setae
 (e) Swimmerets
 15. A fruit formed from a single flower having free carpels is
 (a) a multiple fruit
 (b) a dry dehiscent
 (c) a dry indehiscent Fruit
 (d) a simple aggregate fruit
 16. The region of cell division in a root is
 (a) root cap (b) endodermis
 (c) xylem (d) piliferous layer
 (e) Meristem
 17. A tissue can best be defined as
 (a) an aggregate of similar cells
 (b) an aggregate of cells performing a similar function
 (c) an aggregate of similar cells performing the same function
 (d) a mixture of different cell types performing the same function
 18. The organelle involved in tissue respiration is the
 (a) Golgi body
 (b) mitochondrion
 (c) Ribosome
 (d) Endoplasmic reticulum
 19. Which of the following is not an excretory organ?
 (a) Lungs
 (b) Kidney
 (c) Large intestine
 (d) Skin
 20. The part of the mammalian brain responsible for maintaining balance is
 (a) Medulla oblongata
 (b) Cerebellum
 (c) optic lobe
 (d) cerebrum
 21. The neck region of the Tapeworm (Taenia) is responsible for the
 (a) Production of eggs
 (b) Storage of eggs
 (c) Formation of new segments
 (d) Fragmentation of the body segments.
 22. The oxygen given off during the process represented by the equation
 $6CO_2 + 6H_2O \rightarrow C_6H_{12}O_6 + 6O_2$ is derived from
 (a) Sunlight (b) Chlorophyll
 (c) Water (d) Carbon Dioxide
 23. Which one of the following statements about the mammalian kidney is false?
 (a) The glomerulus is formed by a branch of the renal artery
 (b) The glomerulus is part of the uriniferous tubules
 (c) The Bowman's capsule is in the cortex of the kidney
 (d) The glomerulus is lodged in the Bowman's Capsules
 24. The joint between the atlas and axis vertebrae allows for
 (a) Rotatory movement only
 (b) up and down or nodding movement only
 (c) Rotatory and nodding movements
 (d) slight movement
 25. Which of the following food substance is digested in the stomach?
 (a) Carbohydrates
 (b) fats and oils
 (c) fats and proteins
 (d) carbohydrate and fats.

DELSU POST UTME SCREENING EXERCISE.

16 REPEATED QUESTIONS IN 2013

SURNAME (Capital Letters) _____

OTHER NAMES _____

JAMB REGISTRATION NUMBER _____

PROPOSED FACULTY _____

PROPOSED DEPARTMENT _____

QUESTION PAPER CODE:

9:001:A

TIME: 1 HOUR

1. **DO NOT OPEN THE QUESTION PAPER UNTIL YOU ARE ASKED TO DO SO**
2. **ANSWER SHEETS MUST NOT BE TAKEN OUT OF THE EXAMINATION HALL**
3. **DO NOT DETACH LEAFLETS**
4. **SHADE THE CORRECT ANSWER IN EACH QUESTION**

SCIENCE, SCIENCE EDUCATION, ENGINEERING, AGRIC.
SCIENCE, COLLAGE OF HEALTH SCIENCE AND DIRECT ENTRY

ALL PROGRAMMES

DELSU 2013 REPEATED 19 QUESTIONS

1. You should learn to live within your meager means
(w) plenty (x) surplus (y) inadequate (z) immense
2. Soyinka's plays will not be ephemeral
(w) multi-coloured (x) short-lived (y) built-in (z) long-lived
3. We were defeated but our junior team was___
(w) vicarious (x) protected (y) pummeled (z) victorious
4. Mr. Omoni made a lot of profit today unlike the___ of yesterday
(w) purchase (x) share (y) loss (z) gross
5. The...of the food filled the whole compound
(w) fragrance (x) scent (y) aroma (z) perfume
6. He was caught distributing political___
(w) brochures (x) circulars (y) bulletins (z) pamphlets
7. Will you please___ me your book?
(w) lend (x) supply (y) borrow (z) excuse
8. The headquarters of the African Union is located in
(w) Abuja (x) Cairo (y) Adis Ababa (z) Johannesburg
9. 15% of a certain number is 6. What is the number?
(w) 200 (x) 400 (y) 600 (z) 800
10. Convert 257 in base ten to base 12 (w) 160 (x) 221
(y) 195 (z) 215
11. How many seconds are in 5 hours? (w) 7224secs (x) 1606secs (y) 1800secs (z) 1908secs
12. A trader sold a bicycle at N10,000 with 25% profit. His cost price is
(w) N12,000 (x) N8,000 (y) N6,000 (z) 14,000
13. Three pencils and one rulers cost N13 while two pencils and cone ruler cost N8. How much is the cost of one pencil and one ruler respectively?
(w) N5, N3 (x) N4, N6 (y) N2, N7 (z) N3, N2
14. The geometric mean of 2 and 98 is
(w) 8 (x) 24 (y) 18 (z) 14
15. The quadratic equation whose roots are -4 and 3 is
(w) $x^2 + x - 12 = 0$ (x) $x^2 + 7x + 12 = 0$
(y) $x^2 = 2x + 12 = 0$ (z) $x^2 + 5x - 12 = 0$
16. When the image formed by a convex mirror is compared to its object, the image is usually
(w) erect and smaller (x) inverted and imaginary
(y) real and inverted (z) real and erect
17. Which of the following represents the phenotypic ration of the above genetic cross (w) 1:2:1 (x) 4:1 (y) 3:1 (z) 2:2
18. The smallest living organisms which share the characteristics of both living and non-living matter are
(w) bacteria (x) fungi (y) viruses (z) protozoa
19. The organic molecules present in the nucleus is/are
(w) DNA (x) protein, RNA and DNA (y) RNA and ATP (z) RNA

DELSU POST UTME SCREENING EXERCISE.

214 REPEATED QUESTIONS SO FAR FROM 2005 – 2012

SURNAME (Capital Letters) _____

OTHER NAMES _____

JAMB REGISTRATION NUMBER _____

PROPOSED FACULTY _____

PROPOSED DEPARTMENT _____

QUESTION PAPER CODE: _____

9:001:A

TIME: 1 HOUR

1. **DO NOT OPEN THE QUESTION PAPER UNTIL YOU ARE ASKED TO DO SO**
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SCIENCE, SCIENCE EDUCATION, ENGINEERING, AGRIC.
SCIENCE, COLLEGE OF HEALTH SCIENCE AND DIRECT ENTRY

ALL PROGRAMMES

TYRANNY (give synonym)

- (a) Misrule (b) power
- (c) Madness (d) cruelty

HAPPINESS (give antonyms)

- (a) contentment (b) grief
- (c) renunciation (d) Beatitude

For questions 3 and 4, fix the missing number in the sequence

- 3. 17,34,51,68?
(a) 73 (b) 84 (c) 85 (d) 79

- 4. 100,50,200,25,400?
(a) 300 (b) 12.5 (c) 150 (d) 15

- 5. It was calculated that 75 men could complete a piece of work in 20 days. When the work was scheduled to commence, it was found necessary to send 25 men to complete the work?
(a) 30 days (b) 84 days (c) 85 days (d) 79 days

- 6. **DISPARITY (Give synonym)**
(a) injustice (b) unlikeness
(c) partiality (d) distortion

- 7. The soldiers were instructed to__ restraint and handle the situation peacefully
(a) exercise (b) control
(c) prevent (d) enforce

- 8. Which of the following is larger than 3/5? (a) 1/2
(b) 39/50
(c) 7/25 (d) 3/10

- 9. Out of 80 coins, one is counterfeit, what is the minimum number of weighing needed to find out the counterfeit coin?
(a) 3 (b) 4 (c) 0 (d) 1

- 10. What is the maximum number of half-pint bottles of cream that can be filled with a 4-gallon can of cream (2 pint = 1, Quant. And 4 Quant = 1 gallon)
(a) 16 (b) 24 (c) 30 (d) 24

- 11. What is the selling price of car? If the cost of the car is N60 and profit of 10% over selling price is earned.
(a) N70 (b) N88 (c) N51 (d) N66

- 12. A man leaves office daily at 7pm. A driver with car comes from his home to pick him from office and brings him back home. One day he gets free at 5.30pm and instead of waiting for the driver he starts walking towards home. In the way he meets the driver and returns home in his car. He reaches home 20 minutes earlier than usual. How long does it take the man to get home?
(a) 1 hrs 20mins (b) 1 hr 30 mins
(c) 2hrs (d) 1 hr 40mins

- 13. What is the missing number in this series?
8,2,14,6,11,14,6,18,12
(a) 8 (b) 9 (c) 11 (d) 10

- 14. In recommendations to the board of trustees a tuition increase of N500 per year, the vice-chancellor of the university said "there were no student demonstrations over the previous increases of N300 last year and N200 the year before". If the president's statement is accurate then which of the following can be validly inferred from the information given ?
(i) Most students in the previous years felt that the increase were justified because of increased operating cost
(ii) Students apathy was responsible for the failure of students to protest the previous tuition increases
(iii) Students are not likely to demonstrate over new tuition increases
(a) I only
(b) II only
(c) I or II but not both
(d) I, II, and III

Direction for question 15 and 16

The office staff XYZ corporation presently consists of three bookkeepers, A, B, C, and 5 secretaries, D, E, F, G, H. The management is planning to open a new office in another city using 2 bookkeepers and 3 secretaries of the present staff. To do so they plan to separate certain individuals who do not function well together. The following guidelines were established to set up the new office.

- i. Bookkeepers A and C are constantly finding fault with one another and should not be sent together to the new office as a team
- ii. C and E function well alone but not as a team, they should be separated
- iii. D and G have not been on speaking terms and shouldn't go together.
- iv. Since D and F have been competing for promotion they shouldn't be a team
- 15. If C and F are moved to the new office, how many combinations are possible? (a) 1 (b) 2 (c) 3 (d) 4
- 16. Under the guidelines developed, which of the following must go to the new office? (a) B (b) D (c) E (d) G

Direction for the questions 17-20: Study the given information and answer the following questions

A and B are good at Hockey and Volleyball. C and A are good at Hockey and Baseball. D and B are good at cricket and Volleyball. C, D and E are good at Football and Baseball.

- 17. Who of the following is good at four games?
(a) C (b) D (c) A (d) B
- 18. Who of the following is good at cricket, baseball and volleyball?
(a) E (b) D (c) C (d) B
- 19. Who of the following is good at cricket, hockey and volleyball?

(a) E (b) B (c) C (d) D

20. In a certain code "NOBLE" is written as "OPCMF", how is "PLATE" written as a code?

(a) QMCUE (b) QMBUF (c) PQDNG (d) all of the above

Directions for questions 21-23 in each sentence, one of the underlined is not correct. Spot the error

21. Each cigarette which a person smokes
A
does some harm and eventually you may
B
get a serious disease from its effects
C

22. Honestly speaking I like not because he is
A B
handsome and charming but because he is
C
exceeding kind
D

23. One should take advantage of
A
opportunities to talk with native speakers
B
if one wants to improve your English
C D

Direction for questions 24 and 25

After months of talent searching for an administrative assistant to the president of the college, the filed of applicants has been narrowed down to 5 A, B, C, D, E. it was announced that the finalist would be chosen after series of all-day group personal committee were held. The examining committee agreed the following procedure.

- (I) The interviews will be held once a week
- (II) 3 candidates will appear at any all-day interview session
- (III) Each candidate will appear at least once
- (IV) If it becomes necessary to call application for additional interview, no more than 1 such applicant should be asked to appear the next week.
- (V) Because of a detail in the written applicant, it was agreed that whenever candidates B appears, A should also be present
- (VI) Because of travel difficulties, it was agreed C will appear for only one interview

24. At the first interview the following candidates appear A, B, D, which of the following combinations can be called for the interview to be held next week?
(a) BCD (b) CDE (c) ABef (d) ABC

25. If A, B and D appear for interview and D is called for additional interview the following week, which 2

candidates may be asked to appear with D? i. A ii. B iii. C iv. E

(a) i and iii (b) i and iii only
(c) ii and iii only (d) iii and iv only

ENGLISH LANGUAGE

Instruction: Read the passage below and answer the questions that follow: They endeavour to maintain proper standards of fairness if journalism must be pursued. It is fatally easy for the journalist to deviate from the straight path. There is the natural desire to "make a story", and insidious temptation to twist facts to square with his paper's policy. Both indefensible as the framing of misleading headlines for the sake of effect. The conscientious journalist must check any tendency to bias, and guard against the dangers inherent in personal antipathies of friendships, and in traditional opposition between rival schools of thought. When a political opponent, whose stupidity habitually provokes attack, makes an effective speech, honesty requires that he should be given credit for it. Where personal relationships might make it easier and more congenial to keep silent than to criticize, the journalist must never forget his duty to the public and the supreme importance of recording truth.

26. Insidious in the passage means
(a) subtle (b) wicked (c) natural (d) wild
27. When may a journalist have to act against his own inclination?
(a) after he has been given a bribe
(b) when his enemies insult him
(c) when his friends act stupidly
(d) when he becomes weak and decrepit
28. The duty of the journalist to the public entails
(a) defending the weak
(b) make no enemies but friends
(c) telling the truth
(d) keeping quiet when necessary
29. A journalist would be able to uphold the tenets of his profession if:
(a) he resists temptation to bias
(b) he seeks publicity
(c) He tries to protect his friends
(d) He can manipulate his story to please his employees
30. A dutiful journalist must:
(a) read widely
(b) be able to recognize merit whenever found
(c) Have political acumen
(d) Make no enemies but friends

In each of questions 31-40, choose the most appropriate option opposite in meaning to the word(s) underlined

31. It is generally believed that misers are not loved by many.
 (a) spend thrifts (b) spenders (c) hoarders
 (d) savers
32. Mr. Onwuka was most flexible in his instructions
 (a) rigid (b) correct (c) upright (d) stiff
33. The lotion recommended by the doctor soothed Ese's aching tooth
 (a) worsened (b) calmed
 (c) excited (d) extracted
34. John was locked-up the vault's lock
 (a) remanded (b) punished (c) released (d) locked out
35. The Judge blamed the plaintiff for misleading the court.
 (a) complainant (b) Defendant (c) accused
 (d) prosecution
36. The demonstrators have refused to call off their action.
 (a) start (b) resume (c) consolidate (d) end
37. The robbers vandalized the vault's lock
 (a) serviced (b) arranged
 (c) actuated (d) repaired
38. My sister is very intelligent but her jokes are rather outrageous
 (a) unwholesome
 (b) offensive
 (c) pleasant (d) courageous
39. Chukwuma's daughter response infuriated her father
 (a) confused (b) surprised (c) pleased
 (d) annoyed
40. Ese accepts a mundane task without hesitation
 (a) menial (b) lowly (c) great (d) moderate

In each of questions 41 to 44, choose the option nearest in meaning to the word or phrase underlined

41. Writing for newspaper is exciting and lucrative especially when one is a free-lance journalist
 (a) an eloquent (b) productive
 (c) unattached (d) convicting
42. In some parts of our society, people are ostracized purely on the basis of their parentage.

- (a) shut off from others (b) locked up
 (c) neglected (d) abandoned
43. My friend hate his uncle because he left him the lurch at a critical time.
 (a) Abandoned him (b) punished him
 (c) disrespected him (d) despised him

44. The ceiling of my bed room fell in and knocked me out
 (a) flattened me (b) Injured me
 (c) frightened me (d) made me unconscious

Complete each of the following sentences in questions 45 to 48 by choosing the option that most suitably fills the space

45. The frightening explosion in the factory__ a whole wing
 (a) wiped out (b) washed out (c) flushed out
 (d) cleared out
46. Before we left the airport, each passenger was made to __ certain forms
 (a) fill in (b) write in (c) enter in (d) fill out
47. The boxer was highly rated__ his doggedness
 (a) in (b) by (c) through (d) for
48. The world bank team which visited and land locked country __ a bleak economic future for it.
 (a) forecast (b) projected
 (c) prophesied (d) thought of

In each of questions 49 and 50, select the option that best explains the information conveyed in the sentence

49. The dog is limping. It appeared that one of its legs might have been injured
 (a) the dog was limping as it had injured leg (b) the dog was limping as if it had an injured leg
 (c) The dog was limping for it had an injured leg
 (d) The dog was limping so, it had an injured leg
50. His refusal to help us dealt a death-blow to our plans
 (a) he blew our plan to pieces
 (b) he supported our plan so it worked
 (c) he helped and our plan materialized
 (d) **Because he did not help, our plan did not materialize.**
51. **What is the selling price of car? If the cost of the car is N60 and profit of 10% over selling price is earned.**
 (a) N70 (b) N88 (c) N51 (d) N66

52 A man leaves office daily at 7pm. A driver with car comes from his home to pick him from office and brings him back home. One day he gets free at 5.30pm and instead of waiting for the driver he starts walking towards home. In the way he meets the driver and returns home in his car. He reaches home 20 minutes earlier than usual. How long does it take the man to get home?

- (a) 1 hrs 20mins (b) 1 hr 30 mins
(c) 2hrs (d) 1 hr 40mins

Direction for questions 3 and 4 : After months of talent searching for an administrative assistant to the president of the college, the filed of applicants has been narrowed down to 5 A, B, C, D, E. it was announced that the finalist would be chosen after series of all-day group personal committee were held. The examining committee agreed the following procedure.

- (VII) The interviews will be held once a week
(VIII) 3 candidates will appear at any all-day interview session
(IX) Each candidate will appear at least once
(X) If it becomes necessary to call application for additional interview, no more than 1 such applicant should be asked to appear the next week.
(XI) Because of a detail in the written applicant, it was agreed that whenever candidates B appears, A should also be present
(XII) Because of travel difficulties, it was agreed C will appear for only one interview

53 At the first interview the following candidates appear A, B, D, which of the following combinations can be called for the interview to be held next week?
(a) BCD (b) CDE (c) ABef (d) ABC

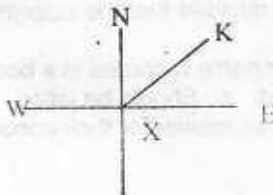
54 If A, B and D appear for interview and D is called for additional interview the following week, which 2 candidates may be asked to appear with D? i. A ii. B iii. C iv. E
(a) i and iii (b) i and iii only
(c) ii and iii only (d) iii and iv only

55 Insidious in the passage means
(a) subtle (b) wicked (c) natural (d) wild
Opposite in meaning of the underline word

56 Ese accepts a mundane task without hesitation
(a) menial (b) lowly
(c) great (d) moderate

57 The lotion recommended by the doctor soothed Ese's aching tooth
(a) worsened (b) calmed (c) excited (d) extracted

58 Fig 1 below shows the approximate direction of K from x:



The approximate direction of k from x in fig. 1 above is

- (a) South-north (S.N)
(b) North-south (N.S)
(c) North-East (N.E)
(d) East-North (E.N)

Nearest in meaning of the underline word

59 Edore has a big heart but he is inept at following a witty conversation
(a) warm (b) huge (c) large (d) fragile

60. The clerk refused to answer for the mistakes made by the manager and his assistants.
(a) to reply to (b) to account for (c) to accept
(d) to give answer to

61 His wife for ten years refused point-blank to leave her matrimonial home when he brought another woman into the house
(a) directly (b) succinctly (c) bluntly (d) boldly

62. Old customs die hard
(a) lend to last for a long time
(b) cause a lot of hardship and death
(c) must be stopped
(d) never die out

63. It is generally believed that misers are not loved by many.
(a) spend thrifts (b) spenders
(c) hoarders (d) savers

64. Politicians are generally assumed to be cunning
(a) sly (b) even-handed
(c) straight forward (d) generous

65. The lady acted courageously when thieves attacked her
(a) timidly (b) shyly
(c) fearlessly (d) indiscreetly

66. My car is badly damaged; I have to look for an expert mechanic to fix it
(a) amateurish (b) uneducated
(c) awkward (d) unscientific

67 In some parts of Nigeria, people are ostracized simply because of their ancestry
(a) hated (b) highlighted (c) rendered unhappy
(d) shut off from society

68 James is a disco addict. He takes his studies rather lightly
(a) seriously (b) unseriously (c) humorously
(d) tediously

69 The thieves vandalized the vault's lock.
(a) assuage (b) repaired
(c) serviced (d) painted

70. The prices ___ are too high for us
 (a) you gave me (b) you quoted
 (c) you want to buy (d) you lent me
71. The thought of her admission to the university keyed Ese up to a state of great excitement
 (a) frightened Ese (b) ushered Ese
 (c) excited Ese (d) stimulated Ese
72. The house wife was hand up before the end of each month
 (a) affluent (b) upset (c) very poor (d) borrowing
73. The employer, not the salesman and the representative ___ responsible for the loss
 (a) are (b) is (c) have been (d) are being
74. TYRANNY (give synonym)
 (a) Misrule (b) power (b) Madness (d) cruelty
- Nearest in meaning
75. The demonstrators have refused to call off their action.
 (a) start (b) resume (c) consolidate (d) end
76. Chukwuma's daughter response infuriated her father
 (a) confused (b) surprised
 (c) pleased (d) annoyed

Read the passage below answer the questions 1-5 choosing the correct option.

Although our aim is to nurture healthy children, Nigerian children are still subjected to severe physical, social and mental stress as they develop. We are split between two cultures – our traditional and the Western a relic of our colonial past. This also affect our child rearing practices. Therefore, these practices must have a very important bearing on how the child is prepared for our world of today so that he fits into our different personalities in terms of motivation, aggressiveness, achievement and the integration of the individual into the community socially and culturally. It is important that while we struggle with the visible organic diseases, we fix our gazes on the other important measures to attain this one-a healthy child.

The process of social adjustment begins from the moment of birth. Many of our traditional birth practices ensure that the mother either carries or suckles her child immediately after birth. The baby comes into contact with the mother at this critical time.

77. The two cultures that the Nigerian child is exposed to are
 a. Colonial and post colonial cultures
 b. Western and non western tradition
 c. Traditional and western cultures.
 d. Educated and non educated cultures.
78. In the passage, there is an attempt to explain that
 a. It is necessary to take care of other things.

- b. It is necessary to concentrate on the child's physical well being alone.
 c. Have nothing to do with educational attainment.
 d. It is necessary to copy foreign ways of bring up children.
79. Since the training for social adjustment begins from the moment of birth, our traditional practices
 a. Are the cause of underdevelopment
 b. improve on local practices and make the future of the child secured.
 c. ensure that the child is brought up in the right way
 d. make the child a stranger to modern civilisation.
80. Unless the training of our traditional birth attendant is based on health practices.
 a. Our children will be underdeveloped
 b. Our children will be worse of than those brought up in the traditional way
 c. the role of the mother will be rendered useless.
 d. our medical services will be unstable to provide the right services.
81. A suitable title for the passage is
 a. how to nurture healthy children in Nigeria
 b. traditional way of nurturing children
 c. westernised way of nurturing children.
 d. role of traditional health attendants.

Fill in the blank spaces from the option A-D

82. Sapele is not far from Abraka. It is only an ___
 a. hour's drive b. hour of driving
 c. hours drive d. Hour by driving
83. I am a student andMusa. i left for the university andMusa
 a. so is, so did b. so was, so does
 c. was, does d. So he is, so he went
84. Excuse me, do you mind.... i smoke?
 a. since b. If c. Because d. against
85. We left USA and crossed.... Atlantic Ocean toEurope
 a. -/- the b. the/the/- c. -/-d. -/am/-
86. I was in such a hurry, i didn't have time to "hello".
 [A] take [b] speak [c] say [d] litter

Nearest in meaning of the underline word

87. His wife for ten years refused point-blank to leave her matrimonial home even when he brought another woman into the house.
 a. bluntly b. boldly c. Directly d. pointedly
88. The new inspector decided that the culprits should be brought to book
 a. should have their name recorded in a book
 b. should be booked c. Should be jailed
 d. should be made to answer for their conduct.

89. It is futile trying to make bricks without straw.
a. bad b. Fragile c. Important d. Vain
90. To be above board is to be
a. afloat b. above suspicion
c. Raise above a board d. Brave.

Opposite in meaning of the underline word

91. Traveling at night can be an ordeal
(a) a great fear (b) a great pleasure
(c) a greater endurance (d) great exercise

Nearest in meaning

92. Old customs die hard. This implies that old customs
(a) cause death (b) must be stooped
(c) tend to last for a long time (d) never die

93. The police officer decided that the culprits should be brought to book
(a) Should have their names recorded in a book (b) should be freed
(c) should be jailed for a week (d) should be made to answer for their conduct

94. It is good to be above board
(a) on top of a board (b) above suspicion
(c) the chairman of a board (d) to live within a board

Nearest in meaning

95. **BAFFLED**
(a) confused (b) deterred (c) interested
(d) impressed (e) tempted

96. **MEEK**
(a) Wicked (b) kin (c) warm (d) Friendly
(e) angry

97. Duplicate of letters can be made by using....
(a) ink (b) carbon paper (c) second sheet
(d) bond paper (e) typing sheet

98. If + sign is represented as /, - as * (into, not power), * as - and / as + then what will be the value of $(480+20*20) - 16/12$?
(a) 112 (b) 100 (c) 878.67 (d) 72

Fill the gap

99. The court ordered the lorry driver to pay for the.... to my car
(a) damages (b) heavy damage (c) destruction (d) many damages (e) damage

Passage

TRADE TIPS FOR TECHNICAL WORKERS in BC

Blueprint reading is the universal language used by mechanics, technicians, builders, engineers, and designers all over the world. Trades people everywhere depend on them to convey necessary information about the various

parts of many different machines and buildings. This is because the shape, size, and appearance of every part is graphically described in necessary detail. Pictures, photographs, by comparison, are simply not precise or detailed enough to do the job. Unlike blueprints, they do not indicate correct sizes, and may not show hidden sections or parts.

When blueprints are used in manufacturing or construction, each part produced can be made to a specific size and shape. A person trained in blueprint reading can look at the blueprint and visualize every part needed for a product. For all of these reasons, learning how to read and interpret blueprint is an important part of vocational training:

100. In which one of the following qualities is a blueprint superior to photograph?
(a) precision (b) proportion (c) appearance (d) colour

101. Learning how to read blueprints enables a trades expert to
(a) improve the quality of manufactured products
(b) become more inventive and turn out more creative work
(c) join the international community of engineers and designers
(d) identify all the parts of a machine regardless of where the machine was made.

102. The passage suggests that if Japanese mechanics or carpenters looked at some French blueprints, they would

- (a) be able to read the French blueprints as easily as they as they could read Japanese blueprints
(b) need some help before they could read the French blueprints
(c) Find the French blueprints so different from the Japanese blueprints that they would need an interpretive guide
(d) be unable to read the French blueprint unless they repeated their trades and technical training in French-based trades training

103. The passage suggests that a person untrained in blueprint reading would

- (a) be able to identify most of the machine parts described, with a little practice
(b) be able to visualize the object in a blueprint, except for hidden parts.
(c) have trouble visualizing the object described in a blueprint
(d) not be able to understand some of the words used in a blueprint.

104. What is the main point of the passage?

- (a) blueprints are different way of showing machine parts than pictures
 (b) blueprints provide precise information about the size and shape of every parts.
 (c) blueprints show machine operations in graphic detail
 (d) blueprints and photographs are both useful to people in the trades

105. The employer, not the salesman and the representative --- responsible for the loss.
 A. are B. was C. were D. have been

106. The traditional folktales form an in the book.
 A. Appendix B. Index C. Insertion
 D. Overview

107. When traffic lights have failed who has priority?

A No-one B. Traffic on the major road

C. Traffic on straight ahead D. Traffic turning left

08. Identify the missing number

41	44	72	78
36	66	62	?

a. 120

b. 122 c. 130 d. 132

09. It costs a manufacturer X naira per component to make the first 1000 components. All subsequent components cost $X \div 3$ each. When $X = N1.50$, how much will it cost to manufacture, 4,000 components?

a. N3,500 b. N3,000 c. N4,000 d. N3,250

choose the option that best conveys the meaning of the underlined portion of each of the following sentences.

10. The task was herculean
 a. demanding b. irregular c. Stimulating
 d. related to herculies

11. The man found his wife physically repellent
 a. flamboyant b. unpleasant c. Pleasurable
 d. attractive

12. The lecturer's obscure publications counted against him during the promotion exercise.
 a. restricted b. closed c. Circulated
 d. widespread.

13. If you travel by air, you will be given an allowance cover ----

A. Luggages B. Baggage
 C. Luggage D. A Luggage

14. The traditional folktales form an in the book.
 A. Appendix B. Index C. Insertion D.
 Overview

115. When the beggars were tired, they ---- down the road.
 A. Laid B. Laid C. Lied D. Lay

116. Opposite in meaning of the underline word
 The governor declined to give audience to the journalist.
 A. Rejected B. Forgot C. Accepted D. Ignored

117. When traffic lights have failed who has priority?
 A No-one B. Traffic on the major road C. Traffic on straight ahead D. Traffic turning left

Nearest in meaning of the underline word 118-120

118. my friend hate his uncle because he left him in the lurch at a critical time.
 A. Abandoned him B. punished him
 C. Disrespected him D. Despised him

119. The ceiling of my bed room felt in and knocked me out
 A. Flattened me B. Injured me
 C. Frightened me D. made me unconscious

120. Writing for 'newspaper is exciting g and lucrative especially when one is a free - lance journalist
 A. an sloqueny B. productive C. unattached
 D. Convincing

121. In some parts of our society, people are ostracized purely on the basis of their parentage.
 A. shut off from others
 B. locked up. C. neglected D. Abandoned

122. The dog is limping. It appeared that one of its legs might have been injured.
 A. The dog was limping as it had an injured leg
 B. The dog was limping as if it had an injur leg.
 C. The dog was limping for it had an injured leg.
 D. The dog was limping so, it had an injured leg.

123. His refusal to help us dealt a death - blow to our plans.
 A. He blew our plan to pieces
 B. He supported our plan so it worked
 C. He helped and our plan materialized
 D. Because he did not help, our plan did not materialized.

124. The boxer was highly rated - his doggednes.
 A. in B. By C. through D. for

125. The world bank team which visited the land locked country - a bleak economic future for it.
 A. forecast B. projected
 C. prophesied D. thought of

1126. The frightened explosion in the factory - a whole wing
 A. wiped out B. washed out

- C. flushed out D. cleared out
- 127 . Before we left the airport, each passenger was made to – certain forms.
A. fill it B. write in C. enter in D. fill out.
- 128 Chukwuma's daughter response infuriated her father.
A. confused B. surprised
C. pleased D. annoyed
- 129 Ease accept a mundane task without hesitation.
A. Amental B. lowly C. great D. moderate.
- 130 The robbers vandalized the vault's lock.
A. serviced B. arranged
C. actuated D. repaired.
- 131 My sister is very intelligent but her jokers' are rather outrageous
A. unwholesome B. offensive
C. pleasant D. courageous
- 132 The judge blamed the plaintiff for misleading the court.
A. complainant B. defendant C. accused D. prosecution
- 133 The demonstration have refused to call off their action
A. start B. resume C. consolidate D. end.
Opposite in meaning of the underline word
- 134 . The lotion recommended by the doctor soothed Ese's aching tooth>
A. worsened B. calm C. excited D. extracted
- 135 . John was locked up for a forth night
A. remanded B. punished
C. released D. locked out
- 136 . It is generally believed that misers are not loved by many.
A. tight war B. spendthrifts C. spenders D. savers
- 137 Mr. Onwuka was most flexible I his instructions.
A. rigid B. correct C. upright D. stiff
- 138 The duty of the journalist to the public entails.
A. Defending the weak
B. Make no enemies but friends
C. Telling the truth
D. Keeping quiet when necessary
139. A journalist would be able to uphold the tenets of his profession if;
A. He resist temptation to bias B. He seeks publicity C. He tried to protect his friends
D. He can manipulate his story to please his employers
- 140 dutiful journalist must;

- A. read widely
B. be able to recognize merit wherever found.
C. have political acumen
D. make no enemies but friends
- 141 insidious in the passage means
A. subtle B wicked C. natural D. wild
- 142 when may a journalist have to at against his own inclination?
A. After he has been given a bribe
B. When his enemies insult him
C. When his friends act stupidly
D. When he becomes weak and decrepit.
Aptitude test
- 143 At the first interview the following candidates appear **A, B, D**, which of the following combination can be called for the interview to be held next week?
A. BCD B. CDE C. ABE D. ABC
- 144 . If A, B and D appear for the interview and D is called for additional interview the following week, which 22 candidates may be asked to appear with D? i. A ii. B iii. C iv. E
a. i and ii B. i and iii only C. ii and iii only
D. iii and iv only
- Directions for questions 145- 147 in each sentence, one of the underlined is not correct. Spot the error.**
- 145 Each cigarette which a person smokes
a
does some harm and eventually you may
b c
get a serious disease from its effects
d
- 146 . Honestly speaking I like him not
a
because he is handsome and charming
b
he is exceeding charming but because
c
he is exceeding kind
d
- 147 . One should take advantage of
a
Opportunity to talk with native speakers
b if one some want to
c
Improve your English
D

Direction for the question 148 –151: study the given information and answer the following questions
A and B are good at Hockey and Volley ball. C and A are good at Cricket and Volley ball. C,D and E are good at Football and Basket ball.

148. Who of the following is good at four game?
A. C B. D C. A D. B
149. Who of the following is good at Cricket, Baseball and Volleyball?
A. E B. B C. C D. D
150. Who of the following is good at Cricket, Hockey and volleyball?
A. E B. D C. C D. B
151. In recommendation to the board of trustees a tuition increase of N500 per year, the vice - chancellor of the university said "there were no student demonstration over the previous increase of N3300 last year and N200 the year before". If the president's statement can be validly inferred from the information given?
i. Most student in the previous years felt that the increase were justified because of increased operating cost.
ii. Students apathy was responsible for the failure of students to protest the previous tuition increases.
iii. Students are not likely to demonstrate over new tuition increases.
A. I only B. II only
C. I or II but not both D. I, II and III
152. What is The selling price of car? If the cost of the car is N60 and a profit of 10% over selling price is earned
A. N70 B. N88 C. N51 D. N66
153. Out of 80 coins, one is counterfeit. What is the minimum number of weighing needed to find out the counterfeit coin?
A. 3 B. 4 C. 0 D. 1
154. The soldier were instructed to -- restraints and handle the station peacefully.
A. exercise B. Control C. Prevent D. Enforce
155. Which of the following is larger than $\frac{3}{5}$?
A. $\frac{1}{2}$ B. $\frac{39}{50}$ C. $\frac{7}{25}$ D. $\frac{33}{10}$
156. . DISPARITY (Give Synonym)
A. Injustice B. unlikeness
C. Partiality D. Distortion
For question 147 and 148, fix the missing member in the sequence.
157. 47, 17,334,51,68?
A. 73, B. 84 C.85 D.79
158. 100,50, 200, 25,400, ?
A. 300 B. 12.5 C. 150 D 15.
e
In question 149-153 choose the option nearest in meaning to the word(s) or phrase(s) in italic

159. Travelling in the night can be an ordeal a. a great exercise b. a great fear c. a great endurance d. a great suffering
160. The confused student found himself in a spot a. in a particular place b. in a normal situation c. in a pleasant situation d. in a difficult situation
161. Our local paper is noted for its incisive editorials. a. sarcastic b. penetrating c. decisive d. destructive
162. He is bound to expose himself by his nefarious activities.
a. kind b. disreputable c. despicable d. nocturnal
163. The Island became more enhancing at night. a. attractive b. delightful c. accommodating d. lively
164. A team of eight lumberjacks cut an average of 15,000 cubic feet of timber in a week. How many cubic feet will four lumberjacks cut in four weeks?
a. 30,000 b. 25,000 c. 32,000 d. 16,000

OPPOSITE IN MEANING

165. Nigeria is gradually experiencing economic recession
(a) destruction (b) discovery(c) recovery (d) birth
166. Since mortality is the lot of man, argued the preacher, we must all accept death with equanimity
(a) anxiety (b) concern (c) uncertainty (d) serenity
167. The debtor's husband is liable for his wife's debt
(a) unanswerable (b) responsible (c) unquestionable (d) accountable
168. Pointing to a man on the stage, Rita said "He is the brother of the daughter of the wife of my husband". How is the man on the stage related to Rita?
(a) Son
(a) husband (c) cousin (d) brother-in-law
- Choose the word which is opposite in meaning to the underlined word in each sentence*
169. He gave a painstaking account of his encounter with the armed robbers (a) sordid (b) fearful (c) half-hearted (d) tender-hearted
170. If you are really keen on immediate results you must have to adopt this pragmatic approach
(a) sensible (b) unrealistic (c) practical (d) opportunistic
- Instruction: Choose the option that conveys the meaning of the underlined portion in each of the following sentences*
171. The result of Dr. Ese's experiment represents a break through in medical science.

(a) catastrophe (b) a breaking point (c) an outstanding success (d) an end to such experiments

172 When the man was caught by the police, he presented a bold front

(a) he faced the situation with apparent boldness (b) he attacked the policemen boldly (c) he bravely attempted to bribe the policemen (d) he frowned at them in a defiant

173 Publishers say that newsprint has become more expensive

(a) newspapers (b) publishing news (c) paper for printing (d) printer's salaries and wages

174 His attempts were nipped in the bud

(a) frustrated (b) unsuccessful (c) cut short (d) disqualified

175 The task was herculean

(a) irregular (b) related to herculis (c) demanding (d) stimulating

Instruction: Complete each of the following sentences by choosing the option that best suitably fills the space

176 Why do you worry about such matters? (a) non-significant (b) insignificant (c) insignificant (d) significant

177 The Pastor said lay your hearts to God (a) bear (b) bare (c) bar (d) barred

178 The point the story is that he is the man's son

(a) of (b) in (c) off (d) around

179 What is relief the strike when it did

(a) ended (b) would ended (c) has ended (d) is ending

180 I saw you walking in that direction, but I did not know exactly

(a) where you are going (b) where are you going (c) where you were going (d) to where were you going

181 Do you know if the new teacher yet

(a) has arrive (b) will be arriving (c) has arrived (d) has been arriving

Instruction: Choose the word which is opposite in meaning to the underlined word in each sentence

182 Unless we see the evil clearly, contending against them is like fighting their air (a) avoiding

(b) struggling with (c) combating (d) repelling

183 Nigeria is gradually experiencing economic recession

(a) destruction (b) discovery (c) recovery (d) birth

APTITUDE

In each of the following questions, we will call the first sentence the key sentence. One word in the key sentence will be underlined and printed in second sentence that plays the same role in that sentence as the underlined word in the key sentence.

184. MARY is happy
From the look on your face, I can tell
A B C
that you must have had a bad da
D

185 We wanted to go out BUT we were too tired.
Because of our extensive
A
training we were confident when we
B C
were out sailing, yet we were always
D
aware of the potential dangers of being on the lake.

186 John said THAT Jill liked chocolate
In our class, that professor claimed
A B
that he knew that girl on the
C D
television news show

187 The officer gave me a TICKET
When she went away to college, the
A
young man's daughter wrote him the
B C
most beautiful letter that he
D

188. JOHN took a long walk in the woods
A
Children in blue jeans were singing
B C
and dancing in the park
D

189. How many minutes is before 12 noon if 32 minutes ago it was three times as many minutes past 9am.
(a) 25 mins (b) 34mins (c) 37mins (d) 30 mins

190 In four years' time the combined age of three cousins and me will be 208. What will be the combined age in seven years' time
(a) 200 (b) 120 (c) 14 (d) 220

191. Mo, Jo and Flo share out a certain sum of money between them. Mo receives 5/8, Jo receives 0.25 and Flo receives N7.50. How much is the original sum of money
(a) N60 (b) N15 (c) N63 (d) N73

192. Mary has a budget of N180.00 to spend on her day out. She spends 5/9 of the N180.00 in the morning. 0.375 of the N180.00 in the afternoon and writes out a cheque for N45.00 in the evening at a

restaurant. What is her financial situation at the end of the day

- (a) minus N32.50 (b) N32.50 (c) N3 cm 20 5
(d) minus N32

- 193 A man received 10% discount for cash and pays N63.45. What discount does he receive?
(a) N7.05 (b) N12.12 (c) N10.18 (d) 16.10

In each of the questions 31-35, chose the option nearest in meaning to the word or phrase underlined

- 194 The Vice-Chancellor appointed a commission of inquiry to go into the students' complaint carefully and without prejudice
(a) ascertain (b) investigate (c) search (d) account for

- 195 Many Nige3rians have inured themselves to hardship
(a) subjected (b) submitted (c) accustomed (d) endeared

196. Akpos' plans for the future are in the air
(a) suspended (b) uncertain (c) empty (d) floating

- 197 In the match against Rangers, Warri seaisiders turned to be the dark horse (a) played most brilliantly
(b) played below their usual form (c) won unexpectedly (d) won as expected

- 198 The bill has to wait as we are insolvent now
(a) insoluble (b) affluent (c) unsettled (d) bankrupt

- 199 Oxygen from the atmosphere reaches the mammalian blood stream through one of the paths indicated below. indicate the correct path.
A = mouth B = trachea C = bronchiole D = Nostril E = Bronchus, F= Alveoli
(a) a → b → e → f → d (b) b → d → f → e → c
(c) d → b → e → c → f (d) f → e → c → d → c

- 200 In a cross involving a heterozygous red flowered plant (Rr) and white flowered plant (rr), what is the probability that the offspring will be Br?
(a) 1 (b) ½ (c) ¼ (d) ¾

For question 9 and 10, find the next term in the sequence

- 201 6,24,60,120,210__
(a) 336 (b) 366 (c) 330 (d) 660

- 202 8,24,12,36,18,54__
(a) 33 (b) 66 (c) 27 (d) 30

For question 11-12, fill in the missing number in each sequence

- 203 0,1,4,9,16,25,36,49,?
(a) 64 (b) 58 (c) 76 (d) 88

- 204 9,18,27,?,45,?36
(a) 28, 60 (b) 36, 54 (c) 37, 58 (d) 36, 60

In each question 205-209 choose the most appropriate option opposite in meaning to the word(s) underlined

- 205 The increase in transport fares deterred our club from planning an excursion this year
(a) deferred (b) irritated (c) encouraged (d) restricted

- 206 The card entitles you to attend the film show
(a) disqualifies (b) discourages (c) satisfies (d) proclaims

- 207 We will surely buy the idea of introducing a new product.
(a) accept (b) reject (c) refuse (d) think about

- 208 Ochuko is naturally taciturn
(a) friendly (b) cheerful (c) garrulous (d) lively

- 209 The executive governor upheld the decision of the cabinet
(a) held up (b) abolished (c) undercut (d) reversed

In each of the questions 41-45, choose the option nearest in meaning to the word or phrase underlined

- 210 All John's plans fell through
(a) failed (b) were accomplished (c) were rejected (d) fell

- 211 The result of the experiment represents a break through in medical science
(a) a colossal failure (b) a breaking point (c) catastrophe (d) an outstanding success

- 212 I have been able observe Ese at close quarter
(a) in government houses nearby (b) within a short space of time
(c) at close range (d) at regular intervals

- 213 Ovie spoke with his heart in his mouth
(a) courageously (b) with such unusual cowardice (c) with a lot of confusion in his speech (d) with fright and agitation

- 214 Oxygen from the atmosphere reaches the mammalian blood stream through one of the paths indicated below. Indicate the correct apt A = mouth b = trachea c = bronchioles d= nostrils e = broncos f= alveoli
(a) a → b → e → f → d (b) b → d → f → e → c
(c) d → b → e → c → (d) f → e → c → d → c

DELSU POST UTME SCREENING EXERCISE.

ANSWERS TO 19 REPEATED QUESTIONS IN 2013

SURNAME (Capital Letters) _____

OTHER NAMES _____

JAMB REGISTRATION NUMBER _____

PROPOSED FACULTY _____

PROPOSED DEPARTMENT _____

QUESTION PAPER CODE: 9:001:A

TIME: 1 HOUR

1. DO NOT OPEN THE QUESTION PAPER UNTIL YOU ARE ASKED TO DO SO
2. ANSWER SHEETS MUST NOT BE TAKEN OUT OF THE EXAMINATION HALL
3. DO NOT DETACH LEAFLETS
4. SHADE THE CORRECT ANSWER IN EACH QUESTION

SCIENCE, SCIENCE EDUCATION, ENGINEERING, AGRIC.
SCIENCE, COLLAGE OF HEALTH SCIENCE AND DIRECT ENTRY

ALL PROGRAMMES

1. y
A meagre means is an amount of food or money that is too small and is less than what is needed. Hence, inadequate is correct.
2. x
Ephemeral is anything that can not last more than one day. Hence short lived is correct.
3. z
Defeated is a state where you loss to another person. Hence, the opposite, in meaning is victorious.
4. Y
Profit is the money that you gain by selling something or doing something hence, the opposite is loss.
5. Fragrance is a smell from flower. Scent is a smell from animals or person.
Perfume is liquid that has a strong pleasant smell that you put on your skin.
6. X
A circular is a paper intended for Wide Distribution .
7. Borrow is to receive with the implied or expressed intension of returning the same or its equivalent
8. Y
The headquarter of the Africa Union is in Ethiopia in Addis Ababa
9. X
Hint: let the certain number be x
 $15x = 6$ (cross multiply)
100
 $\frac{15x}{15} = \frac{600}{15}$ (divide both sides by 15)
X = 40
10. Y.
Hint: divide 257₁₀ by 12 and extract the remainders

12	257	
12	21	R 5
12	1	R 9
0	0	R 1

 $\underline{195}_{12}$
11. Y. Number of seconds in 5 hours =
5 hours x 60 mins x 60 secs = 18,000secs
12. x
Hints: Selling price N10,000, percentage profit = 25%
Cost price = x. in this case we apply the formula for percentage profit which is
% profit = $\frac{S.P - C.P}{C.P} \times 100\%$
 $25 = \frac{10,000 - x}{x} \times 100$ (cross multiply)
 $25x + 100x = 1,000,000$
 $25x = (10,000 - x)100$
 $25x = 1,000,000 - 100x$
 $125x = 1,000,000$ (divide both sides by 125)

$$x = \frac{125}{125} \times 125$$

$$x = \underline{8,000}$$

13. W
Hint: let one pencil be x and one ruler be y
3 pencil = $3x$
1 ruler = y
2 pencil = $2x$
1 ruler = y
 $3x + y = 13$... (i)
 $2x + y = 8$... (ii)
Subtract eq (ii) from eq (i)
 $3x + y = 13$... (i)
 $-2x + y = 8$... (ii)
 $x = 5$
substitute the value of x (which is 5) in either eq (i) or eq (ii)
 $3x + y = 13$... (i)
 $3(5) + y = 13$
 $15 + y = 13$
 $y = 13 - 15$
 $y = -2$
therefore, the cost of one pencil and one ruler respectively is N5, N3.
14. Z
Hint: The geometric mean of some number a and b is the square root of the product of a and b i.e geometric mean of a and b = \sqrt{ab}
The geometric mean of x, y, 2, h, k = $\sqrt[5]{xy2hk}$
G.M = $\sqrt[5]{2 \times 98} = \sqrt[5]{196} = \underline{14}$
15. W
Hint: apply the formular
 $x^2 = (\text{sum of roots})x + \text{product of roots} = 0$
 $x^2 - (-4 + 3)x + (-4 \times 3) = 0$
 $x^2 - (-1)x + (-12) = 0$
 $x^2 + x - 12 = 0$
16. W
Hint: According to the Ray diagrams of images formed on a convex mirror, the image is erect, virtual and smaller than the objective.
17. BONUS ANSWER
18. Y
The smallest living organisms which share the characteristic of both living and non-living matter are viruses.
Hint: They can only reproduce in the cells of living organism. Reproduction is the only characteristic of living organisms possessed by viruses. When in a non-living medium they become crystallized. This characteristic feature also makes them a non-living matter.
19. W
The organic molecules present in the nucleus is/are DNA.
Hint: The nucleus contains chromosome which are made up of NDA (deoxyribonucleic acid).

DELSU POST UTME SCREENING EXERCISE.
ANSWERS TO
214
REPEATED QUESTIONS
SO FAR
FROM 2005 – 2012

SURNAME (Capital Letters) _____

OTHER NAMES _____

JAMB REGISTRATION NUMBER _____

PROPOSED FACULTY _____

PROPOSED DEPARTMENT _____

QUESTION PAPER CODE: _____ 9:001:A

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**SCIENCE , SCIENCE EDUCATION, ENGINEERING, AGRIC.
SCIENCE, COLLAGE OF HEALTH SCIENCE AND DIRECT ENTRY**

ALL PROGRAMMES

2. B
Happiness is a feeling of pleasure, usually because something nice has happened or because they feel suited with their life. Hence the opposite is grief.

3. C
 $17 + 17 = 34$
 $34 + 17 = 51$
 $51 + 17 = 68$
 $68 + 17 = 85$

4. B
 $100 \leftrightarrow 50/2$
 $200 \leftrightarrow 25/2$
 $400 \leftrightarrow 12.5$

5. A

No of men	completion of work
75	70
25	30

 $75 - 25 = 50$
 $75 \times 20 = 30 \text{ days}$

6. B
Disparity is a noticeable difference between two or more thing. Unlikeness is correct.

7. A
Exercise means to use the authority given to you to put something into effect.

8. B
 $3/5 = 0.6$
 $1/2 = 0.5$
 $39/50 = 0.78$
 $7/25 = 0.28$
 $3/10 = 0.3$

9. D
Since it is only one that is counterfeit, you need to weigh the 80 coin one by one to know the counterfeit one.

10. D
 $2p = 1Q$
 $4p = 2Q$
 $6p = 3Q$
 $8p = 4Q = 1 \text{ ballon}$
Therefore, 4 gallons = $4 \times 4Q = 16Q$
 $P = 16 \times 2 = 32p$
Since it is half paid
 $= 32 \times 2 = 64 \text{ half paid}$
Since 2 half paid make 1 point

11. D
S.P = ?
C.P = N60
Profit = S.P - C.P
Profit = 10% of C.P

$\% = 10/100 \times 60/1$
 $= 600/100 = 6$
S.P = C.P + project
 $= C.P = 60$
Profit = 6
Total = 66

12. A

13. B

$8 - 2 = 6$
 $14 - 6 = 8$
 $11 - 9 = 2$
 $14 - 6 = 8$
 $18 - 12 = 6$

The difference between the first line and second line answers is 2. The difference between the third line and the last line is 2. Hence $11 - 2 = 9$ is correct because the figure at the right side is always less or than that of the right side.

14. A

Most students in the previous years felt that the increase were justified because of increased operating cost.

15. B

2 book-keeper and 3 secretaries
A and B separated
D and G separated
D and F competing
If C and F is moved to a new office. We shall have only two bookkeepers
Hence, new combination will be
C and F
D and A
WE can only have 2 combination

16. A

D and F must go to a new office because they are competing for promotion

17. B

A&B = hockey and volleyball
D&B = cricket and volleyball
C&A = hockey and basketball
C, D and E = football and basket ball
Summary
A&B = H & vb
D&B = C & vb
C&A = H & bb
C,D& E = F & bb
A = H, Bb & vb
B = H, vb, & C
C = H, Bb, f
D = C, vb, f Bb

18. B

D is good at cricket, baseball and volleyball.

19. B

20. B is good in hockey, volley ball and cricket.
 B
 The logic is this after any alphabet the next one is the code e.g M next N
 N next O
 O next P
 N next O
 O next P
 B next C
 L next M
 E next F
 P next Q
 L next M
 A next B
 T next U
 E next F
 PLATE = QMBUF
21. C
 YOU is a second person pronoun and the object of a verb or preposition. A speaker or writer uses YOU to refer to the person that they are talking or writing to since the sentence does not specify the person or people he/she is talking to you is cannot be used.
22. C
 YOU cannot be used BUT because together, you use but to introduce something which contrasts with what you have just said, or to introduce something which also adds to what you have just said.
23. D
 One should take advantage of opportunities to talk with native speakers, if one is asked to improve on his English.
24. B
 Since A and B must appear the same time. The rule (iii) each candidate will appear at least once CDE is next
25. D
 A and B cannot appear again. Since they have appeared before, D is only called for a special case. C and E will appear with him.
26. A
 Insidious is something that is unpleasant or dangerous and develops gradually without being noticed. Hence subtle is correct.
27. D
 A journalist will act against his own inclination when he becomes weak and decrepit.
28. C
 The duty of the journalist to the public entails telling the truth.

29. A
 A journalist would uphold the tenets of his profession if he resist temptation to bias.
30. B
 A dutiful journalist must be able to recognize merit whenever found.
31. B
 Misers are those who hate spending money and to spend as little as possible, hence the opposite in meaning is spend drift.
32. A
 Flexible person is someone or something that is able to change easily and adapt to different conditions and circumstances as they come. Hence the opposite is rigid.
33. A
 Soothed one means to calm Ese's aching tooth hence the opposite in meaning is worsened.
34. B
 Locked-up is to be remanded in the prison hence, the opposite is released.
35. B
 A plaintiff is a person who brings a legal case against someone in a court of law hence, the opposite in meaning is defendant.
36. B
 To call off strike action means to stop. Hence the opposite in meaning is resume.
37. D
 Vandalized is what a property is destroyed hence, the opposite in meaning is repaired.
38. C
 outrageous is something that is unacceptable or very shocking, hence the opposite in meaning is pleasant.
39. C
 Infuriate means to make someone to be angry, hence the opposite in meaning is pleased.
40. C
 A mundane task is an ordinary job that is not interesting and unusual. Hence the opposite is great.
41. B
 A freelance journalist is a person that is not employed by an organization but is paid for each piece of work they do by the organization they do it for.
42. A

Ostracized means deliberately behaving in unfriendly way towards people and do not allow them to take part in any of their social activities.

43. A
Left him launch means living him before the actual time he is suppose to leave making him to suffer.

44. D
Knocked me out means hitting him very hard to the extent of becoming unconscious

45. A
Wipeout means to destroy, remove or get rid of something completely.

46. B
Write in me means to write information on a part of a firm, document etc.

47. D
You rate somebody for outstanding performance.

48. A
Forecast a bleak economic future means the future is bad and seems unlikely to improve.

49. B
The dog was limping as if it had an injured leg.

50. D
Death blow means to put an end to an event.

51
S.P = ?
C.P = N60
Profit = S.P - C.P
Profit = 10% of C.P
% = $10/100 \times 60/1$
= $600/100 = 6$
S.P = C.P + project
= C.P = 60
Profit = 6
Total = 66

52. D
53. B. Since A and B must appear the same time. The rule (iii) each candidate will appear at least once CDE is next

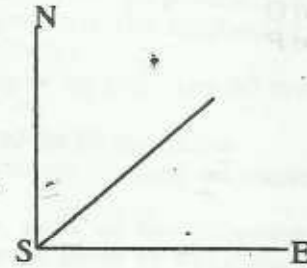
54. D. A and B cannot appear again. Since they have appeared before, D is only called for a special case. C and E will appear with him.

55. A. Insidious is something that is unpleasant or dangerous and develops gradually without being noticed. Hence subtle is correct.

56. C. A mundane task is an ordinary job that is not interesting and unusual. Hence the opposite is great.

57. A. Soothed here means to calm Ese's aching tooth hence the opposite in meaning is worsened.

58. C



59. A. A big heart is a heart that can accommodate a lot of things.

60. D. Answer for means to explain to people in authority the reason why something wrong or why something happened have, give answer to is correct.

61. C. Point blank means that something is very directly or rudely,

62. A. A diehard is something and someone who is very strongly opposed to change and new ideas, or who is very strong supporter of a person or idea.

63. A. A miser is a person who hate spending money and to spend as little as possible hence opposite in meaning is spend thrift.

64. C. A cunning politician is one that has ability to achieve things in a clever way, often by deceiving other people.

65. A. Courageously is someone who show courage and courage is doing something difficult or dangerous even though they may be afraid.

66. A. An expert is a person who is very skilled at doing something or who knows a lot about a subject. Hence the opposite is amateurish.

67. A. Ostracized means a deliberate behavior in an unfriendly way towards other people and do not allow them to take their social activities. Hence, hated is correct.

68. B. Lightly here, means not serious. Hence, unserious is correct.

69. B. Vandalized means to destroy public property

70. B. You quote the price of a product to customer, expecting them to decide whether to accept or not.

71. C. Keyed -up means when you are very excited or nervous before an important or dangerous event
72. D. Hand-up from the sentence means spending all the money with you or you have before the end of the month to the extent of borrowing to survive
73. B. Since the subject matter is the employer, the law state that, in sentence were they are two subject the subject closer to the verb should determine the verb.
74. D. A tyranny is a cruel, harsh and unfair government in which a person or small group of people have power over everyone else. Hence the nearest in meaning is cruelty.
75. B
To call off strike action means to stop. Hence the opposite in meaning is resume.
76. C. Infuriate means to make someone to be angry, hence the opposite in meaning is pleased.
77. C. Nigerian child is exposed to 2 culture, traditional, 8 western culture which is a relic of our colonial past.
78. C. To give a child a healthy life has nothing to do with educational attained.
79. C. Our traditional practice should ensure that the child is brought up in the right way.
80. C. Unless our traditional birth is based on healthy practices the role of the mother will be rendered useless.
81. A. A suitable title for the passage is how to nurture healthy children in Nigeria.
82. A. Hours drive means one hour drive from Sapele to Abraka.
83. A. Did is the past tense of do so 1 left for the university and so Musa did.
84. B. The above statement is a conditional statement. Hence if is used for conditional statement
85. B. THE is used in a sentence to show that you have knowledge about the subject or specify the particular subject. Hence, the- the is the answer
86. C. Say is used in an expression to introduce what you want to say
87. C. Point blank means it is something is very directly or rudely without explaining or

- apologizing. Hence, the nearest in meaning is directly
88. D. Should be made to answer for their conduct
89. D. If you say something is futile it means there is no point in doing it, usually because it has no chance of succeeding. Hence, the nearest in meaning is vain
90. B. It means you have a reputation that is unmentionable
91. B. Ordeal situation is a situation that is difficult and unpleasant. Hence, the opposite is A great pleasure
92. C. end to last for a long time
A die hard person is some one who is very strongly opposed to change and new ideas, or a person who is very strong supporter of a person idea. Hence, the nearest in meaning is tend to last for a long time
93. D. Should be made to answer for their conduct
94. B above suspicious
It means you have a reputation that is unmentionable
95. A. Baffled means a state where you do not understand something or explain it. Hence, the nearest in meaning is confused.
96. D. Meek person is somebody that is gentle and quiet and likely to do what other people say hence the nearest in meaning is friendly.
97. B. Carbon paper is a thin paper with a dark substance on one side, it is used to make copies of letters, bills, and other papers.
98. D
 $(480 + 20 \times 10) - 16/2$
If
 $+ = \div$
 $x = -$
 $- = x$
 $\div = +$
Therefore $(480 \div 20 - 20) \times 16 + 12$
Using BODMAS
 $(480/20 = 24 - 20) \times 16 + 12$
 $(4) \times 16 + 12$
 $= (4) \times 28$
 $= 112$
99. A. Court of law award damages to someone, it orders money to be paid to them by a person who has damaged their property

- 00 C. Blueprint is superior because the shape, size and appearance of every part is graphically described in necessary details.
- 01 D. Blueprints, it enables the expert to identify all parts of a machine regardless of where the machine was made.
- 02 A. Any will be able to read the French blueprint as easily as they could read the Japanese blueprint.
03. D. As person not trained on the blue print will not be able to understand some of the words used in a blue print.
04. B. Blueprints provide precise information about size, shape of every part.
- 105 B. The subject of the above sentence is the employer, which is in singular and was is the first and third person singular
- 106 A. an appendix to a book is extra information that is placed after the end of the main text
- 107 C. The traffic going straight ahead
- 108 B
 $41 - 44 = 3 \times 2 = 6$
 $6 + 72 = 78$
 $36 - 66 = 30 \times 2 = 60$
 $60 + 62 = 122$
- 109 B
 $1.50 / 3 = 0.5 \times 400 = 2000$
 first component = $\frac{1000}{3000}$
- 110 A. Herculean means needing a lot of strength, determination or effort
- 111 D. Repellent means founding something unpleasant. hence, the opposite is attractive
- 112 D obscure publication is a publication that is not well known, hence, the opposite is widespread
- 113 C. luggage is the suitcase and bags that you take with you when traveling
- 114 A. an appendix to a book is extra information that is placed after the end of the main text
- 115 D. You lie – down, lay is also past tense, of the verb lie, in some meaning in informal English, people sometimes used the word lie instead of lay in those meaning
- 116 C. the word decline means politely refuse to accept it or do it. hence opposite in meaning is accept

- 117 C. The traffic going straight ahead 105
B
118. A. left him in the lurch means leaving him before the actual time he is suppose to leave making him to suffer.
- 119 F). Knocked him out means hitting him very hard to the extent of becoming unconscious.
120. C. A freelance journalist is a person that is not employed by an organization, but is paid for each piece of work they do by the organization they do it for.
121. A Ostracized means deliberately behaving in an unfriendly way towards people and do not allow them to take part in any of their social activities.
122. D. The dog was limping so, it had an injured leg.
123. D. Dead-blow is a blow that destroy plan, it make the plan not to work at all.
124. D. you rate person for his or her performance
125. A. you can only forecast the future position of the economy.
126. A. whole wing means moving any object from its original position to another position as a result of force which will destroy the object.
127. A. Fill in means working will necessary information about you in the firm given to you.
128. C Infuriate means to make someone to be among, hence the opposite in meaning is pleased.
129. A mundane tasks is an ordinary has diet is not interesting and unused, -
130. F. vandalized means to damage on a purpose. Hence, the opposite is repaired.
131. Outrageous is something that is unacceptable or very shocking, hence the
132. B. A plaintiff is a person who brings a legal case against someone is a court of law hence, the opposite it meaning is defendant.
133. A. Call off action means to stop, hence the Opposite in meaning". start.
134. A. soothed here means to calm the Ese's aching tooth. Hence the opposite in meaning is worsened
135. C. Looked-up is to be remanded in a person

136. B. misers are those who hate spending money and to spend as little as possible hence, the opposite in meaning is spend drifts.
137. A. flexible is someone or something that is able to change easily and adapt to different conditions and circumstances as the occur.
138. C. Telling the truth
139. A. he resists temptation to bias
140. B. He able to recognize merit whenever found.
141. B. Wicked
142. D. When he becomes weak and deceit
143. B. rule in state that, if it becomes necessary to call application for additional interview, no more than such applicant should be asked to appear the next week, hence, only C & E will appear for the first time and D can appear again.
144. D. C and E have not appeared before and D is additional.
145. C. 146 D 147 C
148. B.
A&B = Hockey & Volleyball
C & A = Hockey & Basketball
D & B = Cricket & Volleyball
A = Hockey, volleyball, basketball
B = Hockey, Volleyball, Cricket
C = Hockey, Basketball, Football
D = Cricket, Volleyball, football, basketball
B = Football and basketball
149. D. D is good at all the games
150. B
151. A. Most student in the previous year felt that increase were justified because of the increase in operating host.
152. D.
S.P = selling price
G.P Gross price
Product% = 10%
 $10/100 = 0.1, 1 \times 60 = 6$
 $0.2 \text{ c.p} + \text{percentage \%} = 60 + 6 = 66$
153. D. The minimum number of weighing needed is one because it is money one that is counterpart.
154. A To exercise Restraints means to stop someone from not doing what he intend to do.
155. B.
 $3/5 = 0.6 \times 10 = 6$
 $1/2 = 0.5 \times 10 = 5$
 $39/50 = 0.78 \times 10 = 7.8$
 $3/10 = 0.3 \times 10 = 3$
Because people don't understand frame, it is multiply by 10 to know the number that is larger than 3/5.
156. Disparity is a noticeable difference between 3 things while unlikeliness means there is different between two things.
157. C.
 $17 + 17 = 34$
 $34 + 17 = 51$
 $51 + 17 = 68$
 $68 + 17 = 85$
158. B
 $200/8 = 25$
 $25/2 = 12.5$
159. D ordeal means a situation that is difficult and unpleasant, hence the nearest in meaning is suffering
160. A if you are on a spot, you are at the actual place where something is happening
161. C. Incisive here is used to describe the local paper on their thought, or their speech when you approve of their ability to their ability to think and express their idea clearly, briefly, and forcefully, hence, the nearest in meaning is decisive
162. C. Nefarious activities are wicked and immoral activities, hence the nearest in meaning is despicable
163. A. Enchanting means that something is very attractive or charming hence, the nearest in meaning is attractive
164. A
15000
B = 1875 for one week
IF 4 Lumberjacks = $4 \times 1875 = 7500$
for 4 weeks = $4 \times 7500 = 30,000$
165. C A recession is a period when the economy of a country is doing badly.
166. A. Equanimity is a calm state of mind and attitude to life, so that
167. A
Liable here means you are legally responsible for it. Hence, the opposite is answerable.
168. A Step son is a son born to their husband or wife during a previous relationship.
169. A A painstaking account here means an explanation that is done extremely carefully and thoroughly.
170. C
Pragmatic approach is a practical way of dealing with something, rather than theoretical.
171. C Breakthrough is an important development or achievement.
172. A Facing the situation without fear, risk or danger involved.
173. C Newsprint is the cheap, fairly rough paper on which newspapers are printed.
174. C Nipped in the bud means to prevent something from becoming a problem by stopping it as soon as it start
175. C
A herculean task or ability is one that requires extremely great strength or effort hence, demanding is correct.
176. Insignificant matter are matters that are not important, you don't need to border yourself.
177. B Bare here means part of your body should not be covered by any thing
178. B The point in what you are saying is the most important part that provides a reason or explanation for the rest.
179. C What a relief the strike has ended.
180. C I saw you walking in that direction, but I did not know exactly where you were going.
181. C Has is the third person singular of the present tense of have, hence do you know if the new teacher has arrived yet is correct 182 Contending hence means competing with them to try to get it.
183. C A recession is a period when the economy of a country is doing badly.
Aptitude Test
184. C The underlined word is many which is the subject an d a non of the sentence while I is a subject in the option which seem as a pronoun.

185 A But, is a conjunction, that is use to introduce something which contrasts with what you have just said, or to introduce something which add to what you have just said, hence because is correct, it is also a conjunction which is used when starting the reason for something.

186 C That is a conjunction, that is used use after a noun, verbs, adjective, which is also as expression to introduce a clause, which report what someone has said or what he think.

187 D A ticket here, is used as an office piece of latter which is a noun while latter is also a countable noun.

188 A The underlined word is John which is a noun and also the subject of thee sentence.

189 A
 The minutes before = $60 \times 12 = 720$
 $720 / 60 = 12$ hours
 32 minutes ago =
 $9: 3 + 32m$ ago = 9:35
 12 noon - 9:35 = 2: 25
 Hence, the minutes not the hour before noon is = 25minutes

190 D
 In four years, age of four = 208
 3 years later = $3 \times 4 = 12$
220

91 D
 $M_o = 5/8 \times 100 = 500/8 = 62.5$
 $J_o = 0.25/8 \times 100 = 25/8 = 3.125$
 $F_o = 73.125$

92 B
 $5/9 \times 180 = 100$
 $0.375 \times 180 = 67.5$
 Cheque = 45
212.5
 $212.5 - 180 = -32.5$
 He has spend more than his budget

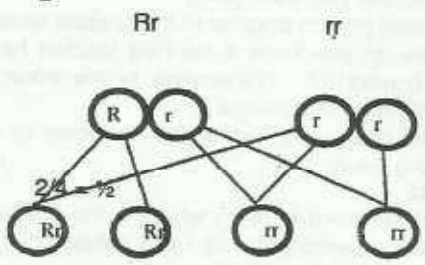
193 A
 $10/100 \times 63.45 = 6.345$
 $6.345 + 63.45 = 69.8$
 Approx. N70
 Therefore 10% of 70 is = 7

34 B
 35 C Inured means when somebody is used to unpleasant thing, and have become part of him/her that it no longer have effects on the person, hence, the nearest in meaning is accustomed

36 B
 37 C Dark horse means unexpected winner

38 D Insolvent is a state of not having enough money to pay your debts. Hence, the nearest in meaning is bankrupt

19 C
 10 B



201 D
 $6+6 = 12+12 = 24$
 $24+24 = 48+12 = 60$
 $60+60 = 120+90 = 210$
 $210 - 90 = 120$
 $210 + 210 = 420, 420 - 90 = 330$

202 C
 $1 - 4 = 3$
 $4 - 9 = 5$
 $9 - 16 = 7$
 $16 - 25 = 9$
 $25 - 36 = 11$
 $36 - 49 = 13$
 $49 - 7 = 15$
 Diff. = 2.
 $49 + 15 = 64.$

203 D
 S.P = ?
 C.P = N60
 Profit = S.P - C.P
 Profit = 10% of C.P
 $\% = 10/100 \times 60/1 = 600/100 = 6$
 $S.P = C.P + \text{profit} = 60 + 6 = 66$

204 B
 $9+9 = 18$
 $18+9 = 27$
 $27+9 = 36$
 $36+9 = 45$

205. C Deterred here means something that will discourage somebody from not doing something hence, the opposite in meaning is encourage.

206. A Entities is something that gives you the official right to have or do something hence the opposite in meaning is disqualify.

207. B Buy as use in the sentence is to accept the idea of introducing a new product hence the opposite in meaning is reject.

208 A Taciturn is speaking very little, so that you see unfriendly.. hence, the opposite in meaning is friendly.

209 B. Uphold is the past tense of uphold which means to support, maintain, law, principle or decision of people opposite abolished.

210 A Fell through means to pass through a process without succeeding, hence, the nearest in meaning is failed.

211 Breakthrough means to deal successful with, especially unreasonable behaviour or bad feeling hence, the nearest in meaning is an outstanding success.

212 C Close quarter means at a distance where you can see and observe hence, the nearest in meaning is close range.

213 A Ovie spoke courageously, with boldness without fear

214 C
 D B E
 Nostril → tracker → bronchus
 C B E
 →Bronchoole→ bronchus
 $d \rightarrow b \rightarrow e \rightarrow c \rightarrow f$

ANSWERS TO DELSU POST UTME SCREENING EXERCISE

PAST QUESTIONS

FOR
2008- 2005

SURNAME (Capital Letters) _____

OTHER NAMES _____

JAMB REGISTRATION NUMBER _____

PROPOSED FACULTY _____

PROPOSED DEPARTMENT _____

QUESTION PAPER CODE: 9:001:A

TIME: 1 HOUR

1. DO NOT OPEN THE QUESTION PAPER UNTIL YOU ARE ASKED TO DO SO
2. ANSWER SHEETS MUST NOT BE TAKEN OUT OF THE EXAMINATION HALL
3. DO NOT DETACH LEAFLETS
4. SHADE THE CORRECT ANSWER IN EACH QUESTION

SCIENCE , SCIENCE EDUCATION, ENGINEERING, AGRIC.
SCIENCE, COLLAGE OF HEALTH SCIENCE AND DIRECT ENTRY

ALL PROGRAMMES

2008/2009 POST UME ENGLISH LANGUAGE [SCIENCE]

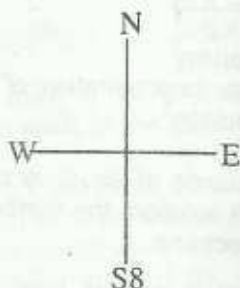
1. B. Inclined here means to behave in a particular way that will please God.
2. A Divergent here means different demand and supply which are different from other.
3. C A brilliant player is a player that is technical and skillful.
4. D You use such to refer back to the thing or person that you have just mentioned.
5. To revoke means to cancel hence, law or an agreement made initially.
6. C Penury is a state of being extremely poor
7. A Wealthy person is a person who has large amount of money, property, or valuable possessions, hence, the nearest in meaning is prestigious.
8. A Innocuous thing is something that is not at all harmful or offensive. Hence harmless is correct.
9. B Colossal means something that is very large. Hence, the nearest in meaning is gigantic
10. B Invented means to bring something out that has never been made or used before.
11. A By the end of the next semester he would have completed his university education.
12. D The subject of the sentence is in singular, hence, the verb should be in singular
13. C Since the subject is in plural the verb should also be in plural
14. B Olukayode used to work as a mechanic when he was young, but he is a driver.
15. A From his viewing proposed it might not look such rosy proposition.
16. A Like is used for comparison of two things that are similar
17. A His popularity was a s a result of measure of their gratitude to an energetic young man.
18. A A village tout is someone who buys tickets for a concert, sport match etc. and sell it at a higher price.

19. B It is true because of his own free will a bright future to return to his people and guide them in the political times.
20. A The political parties in power could be unpreventable because the outgoing minister is certain to be incoming
21. B It is doubtful that he was an expert because he was just a bicycle repairer apprentice.
22. C Penury is a state of having nothing living from hand to mouth.
23. C prodigal is someone who spend money carelessly and their time, hence the closet meaning is Errant.
24. B Innocuous means something that is not offensive dangerous or harmful, hence, the closet is harmless.
25. B colossal is something that is extremely large. Hence, the closet is 61 gigantic.

2008/2009 ATTITUDE TEST

26. D can not say
27. C 68.9 %
28. D Cannot Say
29. A. It is time because, science the invention of gun, many of these changes have brought about by man's desire, protect themselves and the challenges of inventing bigger and more accurate weapon.
30. A. It is true because each time, there has been a major innovation in the development of the gun, they has been a profound effect on the world.
31. B Financial incentive have play a major role in the development of guns.
32. A
33. A 6
34. C N27000 PROFIT
35. A Absolve is a state where somebody is not guilty or not blame for a particular issue after investigation.
36. D Arrogate means to claim responsibility even when you don't have the right to do so.

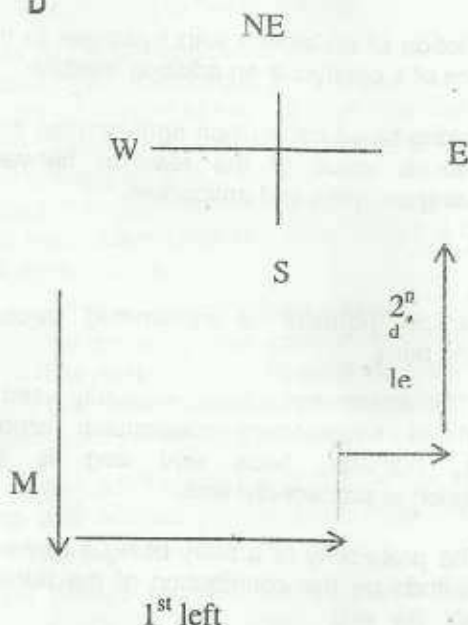
37. C



Tosin street is between north and south, since her hall is in the right hand side mean East.

38. C

39. D



40. D
A double box with a shaded vertical line is correct.

41. C
A box with a line cross horizontally and vertically with a shaded small box in the middle.

42. D
The figure started with six die on top and two at the bottom and end with nothing. It will begin again with six dies at the top and one at the bottom.

43. B.

44. A. Internal consistency is an inbuild inside a car that will make the car to start even when out door temperature of a car drops below -4 degree Celsius but if it refuse to start it becomes unreliable

45. B

It is not all but most of the red deer in Britain and found in Scotland.

46. A Red deer can inter breed with the aid of Japanese sika deer and in some area.

47. B Fallow deer was not named to Britain but introduced by the romans arid since the seventh century.

48. A 49. D 50. A

2008 SCIENCE (GENERAL PAPER)

51. C The general formula for the alkanals is $RCHO$, where R may be alkyl or aryl groups. E.g $CH_2 - C = O$
Ethanol

52. B Group 1 metals are not found free in nature because they are very reactive.

53. B Chlorine is used in the sterilization of water for domestic and industrial use.

54. B An element is electronegative, if it has tendency to gain electrons.

55. A Suitable reagents for the laboratory preparation of nitrogen are sodium dioxonitrate III and ammonium chloride.
(a) $NaNO_{2(aq)} + NH_4Cl_{(aq)} \rightarrow NH_4NO_2 + NaCl$
(b) $NH_4NO_2 \rightarrow N_{2(g)} + 2H_2O_{(l)}$

56. B In metallic bonding, there is no formation of new substances.

57. D
 $HClO_4$
 $1 + Cl + (-2 \times 4) = 0$
 $1 + Cl - 8 = 0$
 $Cl - 7 = 0$
 $Cl = +7$

Therefore, the oxidation number of Cl in $HClO_4$ is +7

58. A Biodegradable pollutants are those pollutants that can be converted to harmless substances by the action of bacteria e.g domestic sewage.

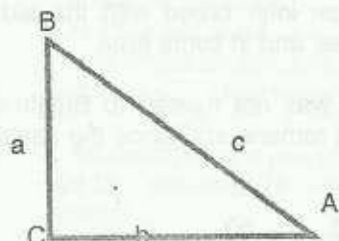
59. A Calcium oxide can be prepared from sea shells by heating at a high temperature (around $900^\circ C$)

60. B The JUPAC name is methyl ethanoate.

61. B
Volume of cone = $\frac{1}{3}\pi r^2 h$
 $= \frac{1}{3} \times \frac{7}{2} \times \frac{7}{2} \times \frac{22}{7} \times \frac{7}{1}$
 $= \frac{539}{6}$
 $= 89\frac{5}{6} m^3$

62. Pr(divisible by 4) = 1/3 (C)

63.



$$\cos(5x-28)^\circ = \sin(3x-50)^\circ \text{ but } \sin x = \cos(90-x)$$

$$\therefore \cos X = \sin(90-X)$$

$$\text{Therefore, } \cos(5x-28)^\circ = \sin(90-(5x-28))$$

$$= \sin(90-5x+28)$$

$$= \sin(118-5x+28)$$

$$\text{SINCE, } \sin[118-5x] = \sin[3x-50]$$

$$118-5x = 3x-50$$

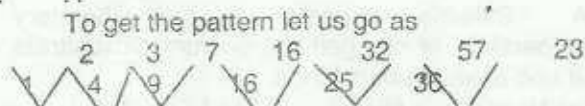
$$118+50 = 3x+8x$$

$$168 = 8x$$

$$X = \frac{168}{8}$$

$$X = 21$$

64.



What do you observe | the down numbers are perfect squares of 1, 2, 3, 4, 5 and 6. Thus

$$2 + 1^2 = 3$$

$$3 + 2^2 = 7$$

$$7 + 3^2 = 16$$

$$16 + 4^2 = 32$$

$$32 + 5^2 = 57$$

$$57 + 6^2 = 93$$

Therefore, the next two terms are 57 and 93

65.

$$\int_0^4 (2x+1) dx$$

$$= [2x \frac{1+1}{1+1} + x^{0+1} / 0+1]_0^4 + C$$

$$= [2x^2/2 + x + C]_0^4$$

$$= [x^2 + x + C]_0^4$$

$$= (0^2 + 0 + C) - (4^2 + 4 + C)$$

$$= 0 + C - 16 - 4 - C$$

$$= -20$$

66.

$$V_A = 15.99 \text{ cm}^3, C_A = ?$$

$$V_B = 25 \text{ cm}^3, C_B = 0.125 \text{ mol/dm}^3$$



$$n_a = 1, n_b = 2$$

$$\text{using } \frac{C_A V_A}{C_B V_B} = \frac{n_b}{n_a}$$

$$C_A = \frac{C_B V_B n_a}{V_A n_b}$$

$$= \frac{0.125 \times 25 \times 1}{15 \times 2}$$

$$= 0.1042 \text{ mol/dm}^3$$

Therefore, molecular concentration of the acid solution is 0.1042 mol/dm³

67.

B IN the conductance of aqueous potassium tetraoxosulphate VI solution, the current carries are the hydrated electrons.

68.

C Sodium metal is always kept under oil because it reacts vigorously on exposure to air.

69.

C Sodium acetate solution is an electrolyte.

70.

D The reaction of an alkene with hydrogen in the presence of a catalyst is an addition reaction.

71.

B During blood transfusion agglutination may occur as a result of the reaction between contrasting antigens and antibodies.

72. A 73 A

74.

Bonus Plasmodium parasite is transmitted through mosquito bites.

75.

B The anatomical evidence usually used in support of evolutionary relationship among whales, humans, birds and dog is the possession of pentadactyl limb.

76.

C The probability of a baby being a boy or a girl depends on the contribution of the father's sex cell.

77.

B $\text{C}_6\text{H}_{12}\text{O}_6 \rightarrow 2\text{C}_2\text{H}_5\text{OH} + 2\text{CO}_2$ is an equation for fermentation.

78.

C The factors that determines the distribution of vegetation zone are temperature, light, rain and humidity.

79.

C The formation of water in tissues respiration results from the reduction of oxygen by hydrogen.

80.

D The enzymes in the pancreatic juice are amylase, lipase and trypsin

81.

$$u = 10 \text{ m/s}$$

$$a = 3 \text{ m/s}^2$$

$$t = 2 \text{ mins} \times 60 = 120 \text{ s}$$

$$S = ut + \frac{1}{2}at^2$$

$$= 10 \times 6 + \frac{1}{2} \times 3 \times 120^2$$

$$= 60 + 3 \times 120^2$$

$$= 4326 \text{ m}$$

$S = 4326/1000\text{km}$
 $S = 43.26\text{km}$

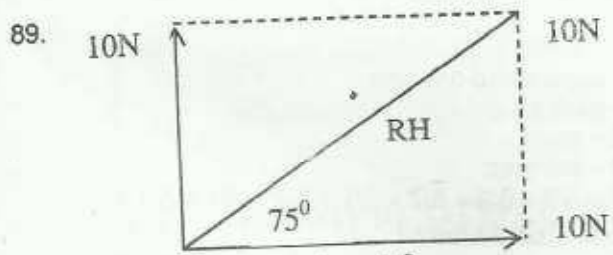
82. D The electroscope is an instrument for detecting and testing small electric charges.
 83. B the magnetic field direction in a wire
 84. D Temperature range of a clinical thermometer is $34^{\circ}\text{C} - 44^{\circ}\text{C}$

85. Refractive index = $\frac{\sin 1/2(dm + 60)}{0.5}$
 $= \frac{\sin 1/2(40 + 60)}{0.5}$
 $= \frac{\sin 50/0.5}{0.5}$
 $\frac{0.6428}{0.5} = 1.3$

86. C
 $H = \frac{u^2}{2g} = \frac{40^2}{2 \times 10} = 1600/20 = 80\text{m (C)}$

87. A
 $\frac{1}{f} = \frac{1}{v} + \frac{1}{u}$
 $\frac{1}{15} = \frac{1}{v} + \frac{1}{20}$
 $\frac{1}{15} = \frac{20+v}{20v}$
 $20v = 15(20 + v)$
 $20v = 300 + 15v$
 $20v - 15v = 300$
 $5v/5 = 300/5$
 $v = 60\text{cm}$
 but $M = v/u$
 $M = 60/20 = 3 \text{ (A)}$

88. B Lightning and its associated thunder have relative time difference to an observer because speed of sound is less than speed of light. (B)



$R^2 = 10^2 + 10^2 - 2(10)(10)\cos 45^{\circ}$
 $R^2 = 200 - 141.42$
 $R^2 = 58.58$
 $R = \sqrt{58.58}$
 $R = 7.65\text{N}$

90. A
 $f = v/\lambda$

$f = 330/1.65 = 200$
 but $f = 1/T$
 $T = 1/f$
 $T = 1/200 = 0.005\text{sec}$

91. D
 92. 93. C
 94. B

$t = w/kd$
 $t^2 = w^2/kd$
 $t^2/w^2k = w^2kl/w^2k$
 $l = t^2/w^2k$

95. C
 61kg, 70kg, 72kg, 73kg, 82kg
 Median = 72kg
 Median is the middle value since we are having five value, the middle value = 72kg.

96. D
 $\sqrt{2} - r\sqrt{2} = 1/\sqrt{2}$
 $-r\sqrt{2} = 1/\sqrt{2} - \sqrt{2}/1$
 $-r\sqrt{2}/1 = 1 - \sqrt{4}/\sqrt{2}$
 $(-r\sqrt{2})\sqrt{2} = 1 - 2$
 $-r\sqrt{4} = -1$
 $-2r = -1$
 $r = -1/-2$
 $r = 1/2$

97. B
 $27^{(1-x)} = 1/81^{(x-2)}$
 $3^{3(1-x)} = 81^{-(x-2)}$
 $3^{3(1-x)} = 3^{-4(x-2)}$
 $3 - 3x = -4x + 8$
 $-3x + 4x = 8 - 3$
 $x = 5$

98. B
 $y = 3x^2 + 4x + 2$
 $dy/dx = 6x + 4$
 $= 6(1) + 4$
 $= 6 + 4$
 $= 10$

99. D
 $43_5 = (4 \times 5^1) + (3 \times 5^0)$
 $= 20 + 3$
 $= 23.$

3	23	
3	7 R 2	↑
3	2 R 1	
3	1 R 1	

$43_5 = 112_3$

100. White = 3
 Black = 4
 Red = 5
 12
 $\text{Pr(B or R)} = \text{Pr(B)} + \text{Pr(R)}$
 $4/12 + 5/12$
 $= 4/5/12 = 93/12$

2007/2008 POST UME ENGLISH LANGUAGE [SCIENCE]

1. D
The cost of living is always higher in city area.
2. D
Trees are cut down
3. A
Ceremony is only for dead people, dead are people who do not have life any longer
4. B
Soil is the upper most layer of the earth and it is only soil that can absorb water.
5. B
G.N.P is gross national product and it keeps growing or declining, it does not remain stagnant for long period
6. C
Historical novels are about people and events in the past
7. A
When a sentence is expressed in past tense the verb should be in past tense
8. C
This method of making fire was laborious
9. A
His discovery was that firebrand, from which the torch may well have developed.
10. C
All he had to do was to fashion a vessel to contain fast and float a lighted reed in it.
11. B
Primitive man was probably more concerned with fire as a source of warmth and as a means of cooking food than as a source of light.
12. A
Whenever he went on a journey, he earned a firebrand with him because it could be used for illumination.
13. B
Fascinating is something that is very attractive and interesting and your thought tend to concentrate on it. hence, the opposite in meaning is repulsive
14. C
Sobbed means when some one cry in a noising way, breathing in short breaths. hence, the opposite in meaning is laughed
15. A
He frowned at them in a definite manner
16. A
The woman was frightened
17. A

At a regular interval

18. D
Ineffectual means something that fail to do what are expected to do. hence, the opposite in meaning is satisfactory
19. A
Flexible means anything or something that can be easily change or adopted to different conditions and circumstances as they occur. hence, the opposite in meaning is rigid
20. B
Soothed mean some thing that can calmed pain down. hence, the opposite in meaning is worsened
21. B
Coherence is a situation in which all parts of something fit together
22. C
Credible in any thing that can be trusted, believable and convenience
23. fastidious means to be careful about small details in your appearance or work. Hence the nearest in meaning is concern.
24. B
Hilarious means to be extremely funning have the nearest in meaning is cheerful.
25. A
Liquidation is a state of not having enough money to pay both creditor and workers; hence, the nearest in meaning is weak.

2007/2008 (OPTION B) SCIENCE ATTITUDE TEST

1. D
If it is an even integer, $u/3$ is an odd integer
2.
3 - apples and oranges
2 - carrots
 $3/2$ - apples
 $3/2$ - oranges
 $3/2 + 3/2 + 3/2 + 3/2 + 2/1 + 3/2 + 2/1 + 3/2$
 $= \frac{3+3+3+3+4+3+4+3}{2}$
 $= 26/2$
 $= 13$ digits codes.
3. C
 $N/4$ and $N/6$
Therefore N is divisible by 3 because the LCM of 4 and 6 = 24 which can be divided by 4 and 6
4. A
Men marry women. Hence
Came marry Billy
Sam marry Carrie
Laurie marry Tina

5. A
If the time between first and last ticks is 30 seconds, at 6 O'clock, than at 12 O'clock, is 2 x 6 times = 2x 30 = 60 seconds.

6. C

7. E
Let the number be x
 $2x + 7 = 19$
 $2x = 19 - 7$
 $2x/2 = 12/2$
 $x = 6.$

8. C

9. D

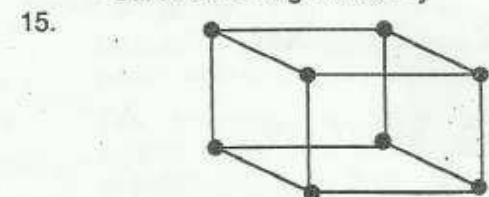
10. D

11. B

12. D
 $4 + 5 = 9$
 $3 + 9 = 12$
 $5 + 12 = 17$
 $9 + 17 = 26$

13. A B D E F G H I J K L M N O
The interval between two alphabet are two(2), so the next letter after K will be N(C).

14. Let the original number of bullets = x number of bullet remaining bullets = y



From the diagram above, the cube has 12 edges (D)

16. D Mr. Bajaj's son is the Engineer and Mr. Bajaj's wife the Doctor

17. B Sadness and happiness have opposite relationship, hence defeat and victory also have opposite relationship.

18. D Timber is used to produce paper while hide is used to produce leather because it is a skin of animal.

19. A
arithmetic mean = $\frac{8 + 12 + 14 + Q}{4}$
 $18 \times 34 + Q/4$
 $34 + Q = 18 \times 4$
 $34 + Q = 72$

Q = 72 - 34

Q = 38

20. D
Revitation is the only wrong spelling others are correct.

21. D
Inconvenience is the only wrong spelling among the rest options.

22. B
It is feet that is used to kick any thing or walk.

23. A
Key is used to lock anything

24. A
He avoided redundancy because he was indispensable. Redundancy here means to lay-off workers.

25. B
He avoided redundancy because he was indispensable. Indispensable here means absolutely essential and other people or things cannot function without them.

2007/200 POST UME GENERAL PAPER [SCIENCE]

1. A The Algae has the highest total stored energy since the area it occupies is bigger.

2. D The organism that functions as a tertiary consumer is shark which is more a advanced consumer.

3. A. The correct option is A which include building of nest, to courtship display to mating, to laying of eggs and hatching and finally parental care.

4. C The stage that involves displays is mating which involves courtship behaviour that leads to reproduction,

5. B. The anatomical evidence is pentdactyl limb which is the limb possessed in common by these mammals.

6. B The movement of a reflex action is from skin, to sensory nerve to central nervous system to motor nervous system and finally to muscles.

7. C The pathway of movement of materials in a kidney is from Bowman's capsule → glumerulus loop of henle → collecting duct → pelvis.

8. B Leave showing network venation is not among the characteristics of dicotyledonous plant.
9. C. The cross is a complete dominance i.e the cross between a red flowered plant and a white flowered plant to produce a pink flowered plant.
10. B Because the testa and fruit wall fuses together after fertilisation.
11. B. A tissue is an aggregate of cells performing a similar function.
12. B. The major difference is that the former have developed a mesoderm which the latter lacks.
13. B.

$$\frac{90 \times 16 + 10 \times 18}{100 + 100}$$

$$= 14.4 + 1.8$$

$$= 16.2$$
14. B Oil spillages in ponds and creeks can be cleaned up by spraying with detergent.
15. A. Pouring of cold water to reduce the effect of burns.
16. B Destructive distillation which is the process whereby coal is subjected to the effect of heat and broken down into coal gas, coal, air, ammoniacal liquor and coke.
17. B $\text{CH}_3\text{COOCH}_2\text{CH}_3$ is an ethylethanoate which is a reaction between ethanoic acid and ethanol.
18. K, Na, Ca, Mg, Al, Zn, Fe, Pb, H, Cu, Hg
19. C
 The function of sulphur in rubber vulcanization is to bind rubber molecules together.
20. A
 Molar mass 342.0g $t = 40^\circ\text{C} = 40 + 273 = 313$
 Solubility = $\frac{\text{mass given}}{\text{Molar mass}} = \frac{342.0}{34.2}$
 $= 10.0 \text{ mol/dm}^3$
21. D. Chromatography which is the movement of the ink solutions through an absorbent medium.
22. A. The average kinetic energy of a gas is directly proportional to its temperature.
23. A.
 $\text{K}_2\text{Cr}_2\text{O}_7 = 0$
 $1 \times 2 + \text{Cr}_2 + -2 \times 7 = 0$

$$2 + \text{Cr}_2 - 4 = 0$$

$$\text{Cr}_2 = 4 - 2$$

$$\text{Cr}_2 = +2$$

24. D.
 No of mole of H_2O of crystallization = mass of hydrated - mass of anhydrous
 $= 5.00 - 4.26 = 0.74$
 No. of mole = $\frac{\text{mass given}}{\text{Molar weight}} = \frac{0.74}{18} = 5.12$
25. C.
 $Q = ML$ where $M = 10\text{kg}$, $L = 3.36 \times 10^6 \text{ J/Kg}$
 $Q = 10 \times 3.36 \times 10^6 = 3.36 \times 10^7 \text{ J}$
26. A
 $P = 50\text{W}$, $t = 2 \text{ min} = 2 \times 60 = 120\text{s}$
 $M = 500\text{g}$ $C = 1.0 \text{ J per K}$ $\Delta T = ?$
 Heat loss = heat gain
 $\Delta T = \frac{pt}{mc}$
 $= \frac{50 \times 120}{500 \times 1} = 12^\circ\text{C}$
27. C
 $V = 12\text{V}$, $I = 2.5\text{A}$, $R = ?$
 From Ohms law
 $V = IR$
 $R = V/I = 12/2.5 = 4.8 \text{ Ohms}$
28. A. Hydrogen light is given off by hydrogen atom forming line spectrum
29. Bonus
 $\frac{F - 32}{9} = \frac{C}{5}$ where $F = 80^\circ$
 $\frac{80 - 32}{9} = \frac{C}{5}$
 $^\circ\text{C} = \frac{5 \times 48}{9} = 26.7^\circ$
 But, $K = ^\circ\text{C} + 273 = 26.7^\circ + 273 = 299.7^\circ\text{K}$
30. A.
 Voltage across resistors connected in series is not the same. That is
 $V_{\text{effect}} = V_1 + V_2 + V_3 \dots V_n$
31. B. When electrons are given off enough energy, they emit energy
32. B
 Let, the image distance be x .
 $\frac{\text{Image distance}}{\text{magnification}} = \frac{\text{image distance}}{\text{object distance}}$
 $\frac{1.5}{5} = \frac{x}{2.5}$
 $x = \frac{2.5 \times 1.5}{5} = 0.75\text{m}$
33. B

$\sin C = 1/n$ where $n = 1.5$
 $C = \sin^{-1}(1/1.5) = 41.8^\circ$

34. $x = 7.8 + 9.2t - 2.1t^3$
 $V = dx/dt = 9.2 - 6.3t^2$
 But $t = 3.5s$
 $9.2 - 6.3(3.5)^2$
 $= 9.2 - 77.18 = -67.98cm$

35. C, The three basic fundamental units are mass(Kg), Time (seconds) and Length (metre)

36. A. Workdone = force x distance moved by the force
 $W = F \times d = 20 \times 2$
 $= 40J$

37. D Scalar equivalent of the vector quantities such as velocity and displacement are speed and distance..

38. A.
 $\int^{w/2} \cos x dx = [\sin]^{w/2}$
 $\sin \pi/2$ But $\pi = 180^\circ$
 $= \sin 180/2 = \sin 90^\circ = 1$

39. B
 $\int dx = x + C$

40. Bonus
 $(8x + 6y)^{xy} = (8 \times 5 + 4 \times 6)^{5 \times 6}$
 $= (40 + 24)^{30}$
 $= (64)^{30} = (6\sqrt{64})^5$
 $= 2^5 = 32$

41. A
 $\frac{2\sqrt{5} \times 7\sqrt{2}}{\sqrt{14} \times \sqrt{45}} = \frac{14\sqrt{10}}{\sqrt{14} \times 3\sqrt{5}} = \frac{14\sqrt{10}}{3\sqrt{70}}$
 Rationalizing, $\frac{14\sqrt{10} \times 3\sqrt{70}}{3\sqrt{70} \times 3\sqrt{70}}$
 $\frac{42\sqrt{700}}{9 \times 70} = \frac{42\sqrt{700}}{6300} = \frac{2\sqrt{7}}{3}$

42. B
 Profit = $\frac{\text{Selling price} - \text{cost price}}{\text{Cost price}} \times 100\%$
 $5 = \frac{S.P - C.P}{C.P} \times 100$
 $5 = \frac{420 - C.P}{C.P} \times 100$
 $5C.P = 42000 - 100C.P$
 $5C.P + 100C.P = 42000$
 $C.P = \frac{42000}{105} = N400$

43. C.
 Area of a trapezium = $\frac{1}{2}[a+b]h$
 $= \frac{1}{2}(12 + 10)7$
 $= 77cm^2$

44. C
 $A = \begin{pmatrix} 2 & 3 \\ 1 & 2 \end{pmatrix}$ and $B = \begin{pmatrix} 0 & -1 \\ 2 & 3 \end{pmatrix}$

Then $2A + 3B$
 $= 2 \begin{pmatrix} 2 & 3 \\ 1 & 2 \end{pmatrix} + 3 \begin{pmatrix} 0 & -1 \\ 2 & 3 \end{pmatrix}$
 $= \begin{pmatrix} 4 & 6 \\ 2 & 4 \end{pmatrix} + \begin{pmatrix} 0 & -3 \\ 6 & 9 \end{pmatrix}$
 $= \begin{pmatrix} 4C & 3C \\ 8C & 13 \end{pmatrix}$

45. D.
 $(x + 1/x)^2 - (x - 1/x)^2$
 $(x + 1/x)(x + 1/x) - (x - 1/x)(x - 1/x)$
 $(x^2 + 1)(1 + x^{-2}) - (x^2 + 1)(1 + x^{-2})$
 $\Rightarrow x^2 + x^{-2} - x^2 + x^{-2} + 1 + 1$
 $\Rightarrow x^4 + 1 - x^2 + 2$
 $\Rightarrow x^4 + 2$
 $\Rightarrow x^2 + 2$

46. B
 $V = 4/3\pi r^3$
 $3V = 4\pi r^3$
 Dividing both sides by 4π
 $3V/4\pi = 4\pi r^3/4\pi$
 $r^3 = 3V/4\pi \Rightarrow r = \sqrt[3]{3V/4\pi}$
 $= V/3\sqrt{4\pi}$

47. Bonus
 Difference in longitude = $40 + 20 = 60^\circ$
 $AB = 60/360 \times 2 \times \pi \times 6400$
 $= \frac{12800\pi km}{6}$

48. E
 49. B.
 $8^x = 0.25$
 $8^x = 25/100$
 $8^x = 1/4$
 $8^x = 4^{-1}$
 $2^{3x} = 2^{-2}$
 $3x = -2$
 $x = -2/3$

50. E.
 Exterior angle = $180 - 160 = 20^\circ$
 \therefore No of sides = $\frac{360}{\text{Exterior angle}} = \frac{360}{20}$

20

2006/2007 POST UME SCIENCE
ENGLISH

1. A liable here means legally responsible for paying the cost of his wife debt
2. D
soothed is positive, to bring a difficult situation to become normal to reduce the pain of something. hence relief, calm, are positive, while worsened and provoked are negative
4. A
locked up means kept in a place for a short time where people does not live e.g garage which is separated from other building. hence, the opposite is released
5. D
courageous is the ability of one to do something dangerous, or to face pain or opposition, without showing fear. hence, the opposite which is doing things with fear. timidly is correct
10. B
analogy is a comparison of one thing with another thing that has a similar featured in order to explain it
11. B
buy here means to accept or to agree to an idea of introducing an entire new product
12. C
Surplus means more than enough
14. C
Intensified means to increase the degree or strength of something. aggravated, - intensified, heightened
15. D
Evasive answer are answer to question which is not clear or reliable, giving an answer to a question to prevent an unpleasant situation while equivocal is a statement that is not clear or having one definite meaning
16. A
Look out for means to carefully watch out for next time to prevent similar mistake.
17. D
prosecution is the action of charging someone with a crime and putting them on trial. hence the nearest in meaning is trial
18. A

A snow ball is something that rapidly increase and grow. Hence grow is correct.

19. D
Watch it, have means look out for something for a period of time, and pay attention to what is happening.
20. B
Tell tale is something that gives information about something bad that will otherwise be noticed
21. A
Grief is a feeling of extreme sadness, it mean they have fail in something they are doing and may be hurt.
22. C
Got themselves friend means, got themselves sack from the job.
23. A
A situation where something bad has happen or will happen because of something appearance.
24. C
Nipped in the bud means to prevent something from becoming a problem by stopping it as soon as it starts.
25. A
Made good means to fulfill the promise initially to some one.

2006/2007 ATTITUDE TEST SCIENCES

1. B
Yours is the second possessive pronoun, yours can refer to one or more people.
2. A
Offered it means when you give something out to someone or when you offered someone an information because they need it or deserve it.
3. C
Literate person is someone that is intelligent and well educated.
4. E
POSSESS → SOPSOES
The rule is that any of the option, when arranged cannot give POSSESS
5. A
WATER → WAWER
You can never arrange wawer to give you water.
6. D
A vertical line crossing the box will be the best because the line crossing the boss started horizontally and going down into a vertical form

D
C
E
Aeroplane → air
Ship → water
Motor vehicle → land

C
Other option can walk but snake crawl with stomach.

B
Brazil is not found in Africa. It is found in South America

B. Car is the odd because it is the only inanimate object

C.
CACAACA
Suppose that number, 1 – 26 is assign to each of the alphabet from A –Z ∴ CACAACA = 3131131

A
A warder is someone who works in a prison supervising the prisoners.

A
Other are mineral resources but wood is from timber.

A.
 $4x + 8 = x + 14$
 $4x - x = 14 - 8$
 $3x/3 = 6/3$
 $= 2$

D
Arranging the number in ascending order, we have
2,3,3,4,4,4,5,5,6,6,6,6
Median is the middle number which is 5

E.
Mode is the most occurring item in the data or distribution. Therefore, 6 occur most.

D
Area of a square, $A = x^2$
 $A = 51^2$
 $= 2601\text{cm}^2$

C.
Is the least among the others

C
B
B

2006/2007 POST UME GENERAL PAPER
[SCIENCE]

1. B
Because the velocity of light reduces in glass as a result of the fact that glass is optically dense than air.

2. D
$$\frac{\text{Image height}}{\text{Object height}} = \frac{\text{image distance}}{\text{object distance}}$$
$$x = \frac{0.15}{1.5} \times 0.5$$
$$0.5x = 0.15 \times 1.7$$
$$x = \frac{0.15 \times 1.7}{0.5} = 0.51\text{m}$$

3. D.
Since the light ray is from dense to less dense media;
 $\therefore 1/n = \frac{\sin i}{\sin r}$
 $1/1.33 = \frac{\sin 49}{\sin r}$
 $r = \sin [1.33 \sin 49] = 90^\circ$

4. Bonus
 $r = 220\text{watts e.m.f} = 205\text{watts } R = 10\text{ohms}$
Recall from Ohm's law
 $I = \frac{\text{E.M.F}}{R + r} = \frac{205}{220 + 10} = 0.89\text{amp}$

5. A
It is called the magnetic meridian. Since magnetic meridian is the vertical plane containing the magnetic axis of a freely suspended magnet at rest under the action of the earth's magnetic field.

6. D.
Alpha particles can be easily absorbed by thin sheet of paper

7. C.
Will have a father of genotype AB. Since blood genotype OO and genotype AB are synonymous in blood groupings.

8. A.
Sudden flood is the density dependent factor that regulate the population size of organism.

9. B.
The anatomical evidence is pentadactyl limb which is the limb possess by the mammals in question.

10. B.
From Skin → sensory nerve → central nervous system → motor nerve → muscle

11. A.

Schistosomiasis is a disease contracted in areas with fast flowing water.

12. B
The group of factors that are abiotic include temperature, pH, soil, insect which are non-living factors.

13. A
Synthetic rubber is made by polymerization of 2 methylbuta - 1 - 3 diene which is called isoprene.

14. A
Let the rate of diffusion of gas y be 2
∴ rate of diffusion of gas x is 2 x 2 = 22.
Mgasx = 28
Mgas y = ? $\frac{R_{gasy}}{\sqrt{M_{gasy}}} = \frac{\sqrt{M_{gasx}}}{22} = \frac{2}{22} = \frac{\sqrt{28}}{22} \times (2)^2 = \frac{\sqrt{28}}{22}$
 $\frac{R_{gasx}}{\sqrt{M_{gasx}}} = \frac{22}{\sqrt{28}}$
 $\frac{12}{42} = \frac{281}{42} = \frac{28}{42} \therefore M_{gasy} = 28 \times 4 = 112$

15. A
The process include respiration → decay and combustion

16. D
VB = 25cm³ CB = 0.2mol/dm³ VA = 20cm³
CA = ?
Na₂CO₃ + 2HCl → NaCl + H₂O + CO₂
Using $\frac{CAVA}{CBVB} = \frac{na}{nb} = \frac{CA \times 25}{0.2 \times 25} = \frac{2}{1}$
∴ CA = $\frac{0.2 \times 25 \times 2}{25} = 0.4 \text{mol/dm}^3$

17. C
Is caused by presence of calcium hydrogen trioxocarbonate IV which leaves a white coating on the surface of the metal

18. C
Finely divided iron is the catalyst used in haber process for manufacture of Ammonia.

19. Bonus
Fe₂O₃ + 700% M = 80kg
Mass of iron ⇒ Fe₂/Fe₂O₃ = 112/70.0 x 80/1 = 128.0g

21. D
 $\frac{\sin^2 x}{1+\cos x} + \frac{\sin^2 x \sin^2 x}{1-\cos x} = \frac{\sin^2 x}{1-\cos^2 x}$
 $\frac{\sin^2 x}{\cos^2 x} = 1$
22. Bonus

$x^2 + y^2 - 3x - 2y - 7 = 0$
 $x^2 - 3x + y^2 - 2y = 7$
Adding half of the coefficient of -3x to and -2y to x^2 and y^2 respectively
 $x^2 - 3x + (-3/2)^2 + y^2 - 2y + (1)^2 = 7 + (3/2)^2 + 1^2$
 $(x - 3/2)^2 + (y - 1)^2 = 7 + (3/2)^2 + 1^2$
Therefore, the circle passes through (a, b) = (3/2, 1)

23. D
P(obtaining at most 10) = 33/36 = 11/12

24. Bonus
 ${}^nC_3 = {}^nC_{12}$
 $\frac{n!}{(n-3)!3!} = \frac{n!}{(n-12)!12!}$
 $\frac{n!}{3n!-9} = \frac{n!}{12n!-24}$
 $n!(12n! - 24) = n!(3n! - 9)$
 $12n^2 - 24n = 3n^2 - 9n$
 $12n^2 - 3n^2 = -9n + 24n$
 $9n^2 = 16n$
 $n^2 = 16n/9 \quad n = 4n/3$

25. B

26. $AB = \sqrt{(x_2-x_1)^2 + (y_2-y_1)^2}$
The distance between two points AB is given above
 $F_{10} = \sqrt{(2x-x)^2 + (-4+3)^2}$
 $\sqrt{10} = \sqrt{x^2-1}$
 $\sqrt{10} = \sqrt{x^2-1}$
Multiplying the powers of both sides by 2
 $10 = x^2 - 1$
 $x^2 = 10 + 1$
 $x = \pm\sqrt{11}$

27. D
The internal energy of a gas is not a vector quantity.

28. B
Density of a solution is defined as the ratio of mass per unit volume. That is, D = M/V

29. C
For two forces acting in the opposite directions
 $F_2 - F_1 = ma$
 $12 - 2 = 10 \times a$
 $a = 10/10 = 1.00 \text{m/s}^2$

30. D
None of the above

31. D
 $x = \Delta l$

$$L_1 \Delta \theta$$

$$\Delta l = \alpha l_1 \Delta \theta$$

$$= 0.000017 \times 10 \times 60 = 0.0102$$

32.

C

$1/u + 1/v = 1/f$, since image is virtual

$$v = -4u$$

$$1/u - 1/4u = 1/6$$

$$\frac{4-1}{4u} = \frac{1}{6}$$

$$\frac{3}{4u} = \frac{1}{6}$$

$$4u \cdot 6$$

$$18 = 4u$$

$$u = 18/4 = 4.5$$

$$v = 4 \times 4.5 = 18\text{cm}$$

33.

B

Because the testa and fruit wall fuse after fertilization which results in producing a fruit.

34.

D In plant cells the chloroplast are located within the cytoplasm of the plant cell.

35.

A Anelids differ in that they exhibit bilateral symmetry i.e division into two equal halves.

36.

C Houseflies beetles and butterflies exhibit complete metamorphoses.

37.

B Sulphur mines, vehicle exhausts and aerosols are examples of source of air pollution.

38.

B The major difference is that platyhelminthes have a developed mesoderm.

39.

C. The IUPAC nomenclature is 2-methylbut-3-ene

40.

B

number of mole = $\frac{\text{mass given}}{\text{molar mass}} = \frac{5.6}{100} = 0.10\text{mole}$

Molar mass 100

41.

A Its atomic number = 82 i.e proton number

42.

A H_2SO_4 acts as a dehydrating agent since it removes the molecules of water from the sugar.

43.

D Its ions are incompletely dissociated

44.

D Oxygen and sulphur are allotropes

45.

$$2 + \frac{1}{4} \text{ of } 28 = 2 + \frac{1}{4} \times 28$$

$$\frac{5}{4} = \frac{5}{4}$$

$$2 + 7$$

9

$$\frac{5}{4} \times \frac{1}{9} = \frac{5}{36}$$

46.

B

$$\begin{array}{r|l} 2 & 13 \\ 2 & 6 \text{ R } 1 \\ 2 & 3 \text{ R } 0 \\ 2 & 1 \text{ R } 1 \\ & 0 \text{ R } 1 \end{array}$$

$$13_2 = 1101$$

$$\begin{aligned} 0.31_2 &= 3(2)^{-1} + 1(2)^{-2} \\ &= \frac{3}{2} + \frac{1}{2^2} \\ &= \frac{3}{2} + \frac{1}{4} \\ &= \frac{6+1}{4} = \frac{7}{4} \end{aligned}$$

$$13.13 \text{ to base } 2 = 1011.111_2$$

47.

C

$$b^2 - b - (t^2 + t)$$

$$b(b-1) - t(t+1) = (b+1)(b-t-1)$$

48.

C

$$3x - 5 = 2x^2$$

$$2x^2 - 3x + 5 = 0$$

$$(2x, -5)$$

$$(x, 1)$$

$$= 2x - 5x = -3x$$

$$(2x-5)(x+1)$$

$$\text{Either } 2x - 5 = 0, x = 5/2 \text{ or}$$

$$x + 1 = 0, x = -1$$

$$x = -1, 2\frac{1}{2}$$

49.

Bonus

$$3x - 3y = 1 \dots\dots (1) \times 1$$

$$y - 2x = 11 \dots\dots (2) \times 3$$

$$3x - 3y = 1 \dots\dots (3)$$

$$3y - 6x = 33 \dots\dots (4)$$

Add (3) and (4)

$$-3 + 3y = 0$$

$$-6x + 3x = 33 + 1$$

$$\frac{-3x}{3} = \frac{34}{3}$$

$$x = 11.3$$

put $x = 11.3$ into (1)

$$3(11.3) - 3y = 1$$

$$34 - 3y = 1$$

$$-3y = 1 - 34$$

$$-3y = -33$$

$$y = 11$$

$$\text{therefore, } (x + y) = (11.3 + 11) = 22.3$$

50.

C

$$T \propto 1/u$$

$$T = k/u$$

$$k = Tu$$

$$k = 15 \times 12 = 180$$

$$\therefore u k/T = 180/60 = 3$$

2005/2006 POST UME ENGLISH LANGUAGE [SCIENCE]

A
when the subject of a sentence is expressed in a singular the verb should be in singular. the family is an entity which is expressed in singular

A
from the above question, the youngest is a descriptive adjective which is used to qualify the subject [brother] and the emphasis of the question is the youngest which is in singular. hence, the verb should be in singular

B
The above sentence subject [two panes of glass] is expressed in plural. hence the verb should be in plural

B
when and joins two subject in a sentence the verb should be in plural

A
or is used as a correlative when there are two things or people to be discussed which requires one of it/ them to be used. or takes a singular

A
The sentence is one out of many which is singular [one] hence, the verb should be in singular

B
for better opportunity

B
determined to prove that it is the most acceptable

B mediocrity is the order of the day

A the writer is a member of the elite

A
AND is conjunction that joins together two items which are positive or negative. Hence, we fetched plantain [positive] from the farm positive

B
BUT is used in a sentence when one of the items to be used joined together is positive and the other negative I don't like coffee [negative] does he [positive]

B

BUT is used in a sentence when one of the items to be used joined together is positive and the other negative she owns a car [positive] never drive [negative]

14 A
AND is conjunction that joins together two items which are positive or negative. I have been to the hospital [positive] seen the doctor [positive]

15 .C
OR or is used in a sentence as a conjunction that forms together two items, one positive and the other negative

16. A
Concealing is to cover something or hide it carefully

17. A
Beginning is the first part of an event.

18. B
Debating is a discussion about a subject which people have different views.

19. B
Bleeding is used by some people to emphasize what they are saying, especially when they feel strongly about something or dislike.

20. A
An offering is something that is specially produced to be sold.

21 B
The doctor Advised Mr Nortey not work too hard exhausts and aerosols

22 C
Mrs Nani whispered to her husband that she heard the burger in the nest room

23 A
The drowning man exclaimed for help

24 D
Salifu's mother threatened that, if Salifu didn't apologize to Mrs Oseji she would go bed without her supper

25 D
Salifu pointed out that she was sorry she was rude to Mrs. Oseji

**2005/2006 SESSION OPTION B
BIOLOGY**

1. C
Deoxygenated blood flows into the right and left lungs through the pulmonary artery
2. D
The crown of the mammalian tooth is covered with a hard substance called enamel.
3. D
The dental formula below is of dog (I 3/3, C 1/1, Pm 2/4, M 2/3)
4.
Green plants are distinguished from other living organisms by the ability to manufacture their own food.
5. A
One significant difference between roots and stem is that branch roots originate in the pericycle while branch stem do not.
6. C
Insects have power of conserving water because chitin is impermeable to water. (C)
7. The part numbered 12 is operculum plate. (C)
8. During movement from one point to another, the part labelled 10 which is the scale is not required. (D)
9. The function of the scale in the fish is protection. (C)
10. The features that distinguished a toad or frog from a fish is the absence of scales. (D)
11. The autogenously substance that is excreted by birds in order to conserve water is uric acid. (B)
12. The best method of propagating sugarcane is by stem cutting. (D)
13. In monocot or rhizopus, carbohydrate is absorbed in the form of glucose. (C)
14. Amoeba moves by means of pseudopodia. (C).
15. A fruit formed from a single flower having free carpels is a simple fruit. (D)
16. The region of cell division in a root is the meristem (E)

17. A tissue can best be defined as an aggregate of cells performing a similar function. (B)
18. The organelle involved in tissue respiration is the mitochondrion (B)
19. C
Large intestine is not an excretory organ.
20. B
The part of the mammalian brain responsible for maintaining balance is the cerebellum.
21. C
The neck region of the tapeworm (taenia) is responsible for the formation of new segments.
22. C
The oxygen given off during the process represented by the equation $6CO_2 + 6H_2O \rightarrow C_6H_{12}O_6 + 6O_2$ is derived from water.
23. D
In the mammalian kidney, is the glomerulus is part of the uriniferous tubules and the Bowman's capsule is in the cortex of the kidney.
24. C
The joint between the atlas and axis vertebrae allows for rotator and nodding movement.
25. Fats and proteins are been digested in the stomach. (C).

2005 / 2006 CHEMISTRY

1. The major effect of oil pollution in coastal water is destruction of marine life. (A).
2. Chromatography is used to separate components of mixture which differ in their rates of migration. (B)
3. Neutralisation involves a reaction between H_2O and NO_3^+ (C)
5. $A = N + Z$
A = electrons, N = Neutrons and Z = atomic number
 $A = N + Z$
 $A - N = Z$
 $Z = A - N$
 $= 127 - 32$
 $= 95$
6. Phosphorus is stored under water to prevent it from dehydrating. (A)

Atomic number = 13

2, 8, 3 therefore, the number of unpaired electrons are 3 (C)

In two separate experiments, 0.36g and 0.71g chlorine combined with a metal X to give Y and Z respectively. An analysis showed the Y and Z contain 0.20g and 0.40g of X respectively. The data above represents the law of multiple proportion. (A)

2. Metals are good conductor of electricity, metals ionise by electron lose, they have high melting point. (C)

1. An example of a polysaccharide is starch. (D)

Starch can be converted to ethyl alcohol by fermentation (B)

The formular of the compound formed in a reaction between a trivalent metal X is M_3X_4 (B)

IN the Haber process for the manufacture of ammonia, the catalyst commonly used is finely divided iron. (B)

(A)

Clothes should be properly rinse with water after bleaching because the bleach decolourise the clothes. (A)

18. The property that decreases along the period and increases down the group in periodic table is atomic radius. (D)

19. Tin is the metal that is passive to concentrated trioxonitrate (V) acid. (B)

20. The repeating unit in natural rubber is isoprene. (B).

21. The process of coal giving coal gas, cool tar, coke, and ammonical liquor is called destructive distillation. (B)

22. The oxygen given off during the process represented by the equation is gotten from water
 $6CO_2 + 6H_2O \rightarrow C_6H_{12}O_6 + 6O_2$ (c)

23. The reaction of alkanonates with sodium hydroxide is called saponification. (D)

24. As a catalyst (D)

25. Oil spillage in ponds and creeks can be cleaned up by spraying with detergent. (B)

DELSU POST UTME LECTURE NOTE

FOR THE
FACULTY OF SCIENCES,

HEALTH SCI,

ENGINEERING,

SCIENCE EDUCATION,

AGRIC. SCI.

LECTURE NOTE ON POST UME SYLLABUS PHYSICS

Energy and Power

Electric energy is used up when work is done. The unit of both work and energy is joules (J).

$$W = VQ \text{ OR } W = VIt \text{ (since } Q = It)$$

Using Ohm's law in the form $V = IR$ or $I = V/R$, our electrical expansion will be

$$W = Ivt \text{ or } W = V^2t/R$$

$$\text{Or } W = I^2Rt$$

Electrical power is defined as energy used or produced per second. = work/time = W/t (J/s)

$$\text{that is power } P = IV \text{ or } P = V^2/R \text{ or } P = I^2R$$

Ohm's law: States that the current passing through a metallic conductor at constant temperature is proportional to the potential difference between its ends.

$$\text{That is } V \propto I \text{ OR } V = IR$$

Resistors in Parallel: It is said to be parallel if they are placed side by side with their ends joined together in such a way that the P.D across each resistor is the same.

$$\frac{1}{R} = \frac{1}{R_1} + \frac{1}{R_2} + \frac{1}{R_3}$$

Resistors in Series: When three resistors R_1 , R_2 and R_3 are connected end to end in such a way that the same current passes through each resistor when they are connected to a source of e.m.f

$$R = R_1 + R_2 + R_3$$

Capacitors in Parallel: If they are connected in parallel the net capacitance C is given by $C = C_1 + C_2 + \dots$

Capacitors in Series: If two or more capacitors C_1 , C_2 are connected in series, it can be shown that the equivalent or net capacitance C of the combination is given by

$$\frac{1}{C} = \frac{1}{C_1} + \frac{1}{C_2} + \dots$$

Motion: Is defined as the change of position of a body with time.

Some types of motion:

- i. Random motion
- ii. Oscillatory motion
- iii. Rotational motion
- iv. Translational motion

Newton Law of Motion

First Law: States that a body will continue in its present state of rest or if it is in motion, will continue to move with uniform speed in a straight line unless it is acted upon by a force.

Second Law of Newton Law of Motion: States that the rate of change of momentum of a body is directly proportional to the applied force and takes place in the direction in which the force act.

Third Law of Newton Law of Motion: States that to every action there is an equal and opposite reaction.

Velocity is the speed measured in a given direction. It is therefore a vector quantity.

Acceleration a , is the rate of change of velocity with time.

$$a = V/t$$

$$\text{Equation of motion} = S = v+u/2 \times t$$

By definition of acc. A , since a is constant

$$= v - u/t \text{ or } v = u + at$$

Random Motion: As in the case of gaseous particle, which is disorderly motion with no pattern to it.

Translational Motion: Rigid objects that move in space without rotating.

Rotational Motion: Which involves moving in a circle about a centre or an axis e.g spinning wheel or rotating fan.

Oscillatory Motion: Which is to and fro type of motion as in the case of a spinning pendulum.

OPTICS

Kinetic theory involves the idea of the molecular movement in gases. Or

The idea of continuous molecular motion in gases is called kinetic theory. The basic assumptions of the kinetic theory are:

1. Gases consist of a vast number of very small particles called molecules, which are usually in constant motion.
2. The motion of the molecule chaotic i.e there is random motion or movement in all directions within the cylinder.
3. Collisions occur between molecules themselves and between the molecules and the walls of the containing vessels.
4. The distance between the molecules is large in comparison with the size of the molecules or put differently, the volume of the molecules of a gas, is negligible when compared with the volume of the container.

Gas Law

The effect of pressure was not considered important for liquid and solid expansion, however, for the expansion of gases the effect of pressure change its importance. Thus, in discussing the expansion of gases the pressure, volume and temperature must be taken into account. The relationships between these three quantities are as follows;

1. Variation of volume, pressure at constant temperature/such relation is called Boyles law
2. Variation between, volume and temperature at constant pressure is called Charles law.
3. Variation of temperature with pressure at constant volume is called pressure law.

Boyles Law

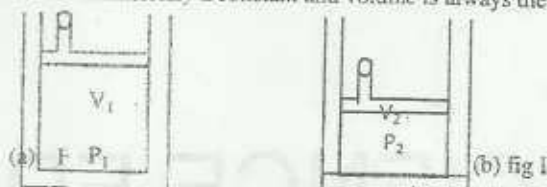
This law states that the volume of a fixed mass of gas varies inversely as the pressure upon it provided that the temperature remains constant.

$$V \propto 1/p, \quad V = k/p$$

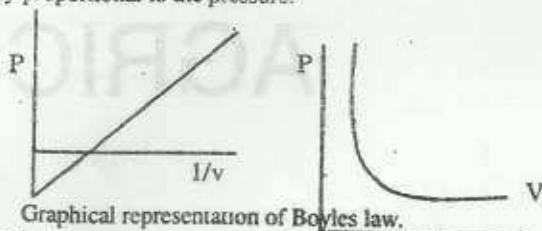
$$\therefore K = PV$$

$$\therefore P_1V_1 = P_2V_2$$

Where K is numerically a constant and volume is always the same.



In fig 1 there is a pressure P_1 when the volume is V_1 . If however, the piston is pressed down until it is in the new position shown in fig 1, (b) the volume has been decreased to V_2 while the pressure has been increased to P_2 . If this takes place so slowly that there is no change in temperature, the volume occupied by the gas is inversely proportional to the pressure.



Graphical representation of Boyles law.

Example 1

280cm^3 of air at atmospheric pressure (i.e 760mmHg) is put under pressure of 3.4m of mercury. What is the volume of air at this pressure.

Solution

$$V_1 = 250\text{cm}^3, P_1 = 760\text{mmHg}, P_2 = 3.4 \times 1000 = 3400\text{mmHg}, V_2 = ?$$

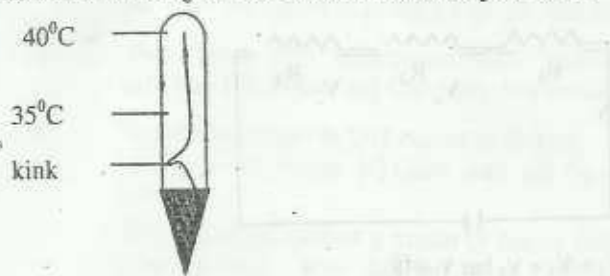
$$P_1 V_1 = P_2 V_2$$

$$= V_2 = \frac{P_1 V_1}{P_2} = \frac{760 \times 250}{3400}$$

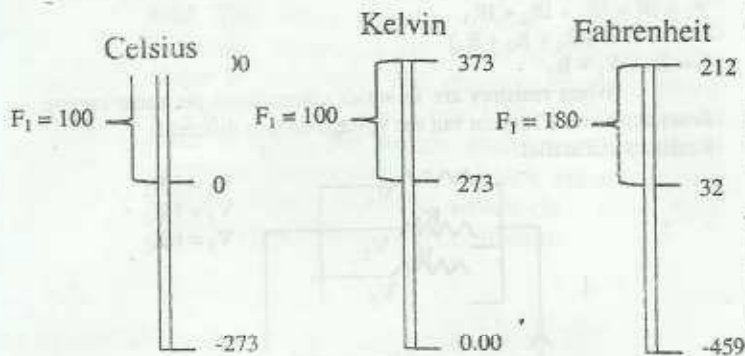
$$V_2 = 62.59 \text{ cm}^3$$

Clinical Thermometer

Clinical thermometer is a kind of mercury in glass thermometer. It has a maximum range of 40°C and a minimum range of 35°C .



Temperature scales



Conversion from Centigrade to Fahrenheit

$$\frac{F-32}{C-0} = \frac{212-32}{100-0} \quad \text{OR} \quad \frac{F-32}{212-32} = \frac{C-0}{100-0}$$

$$\frac{F-32}{180} = \frac{C}{100} \quad \Rightarrow \quad F-32 = \frac{180 \times C}{100} = \frac{9C}{5}$$

$$\therefore F = \frac{9C}{5} + 32$$

Conversion from Fahrenheit to Centigrade

$$\frac{F-32}{212-32} = \frac{C-0}{100-0} = \frac{F-32}{180} = \frac{C}{100}$$

$$180C = 100(F-32)$$

$$\therefore C = \frac{100(F-32)}{180} = \frac{5}{9}(F-32)$$

$$\therefore C = \frac{5(F-32)}{9}$$

Conversion from Fahrenheit to Kelvin

$$\frac{F-32}{212-32} = \frac{K-273}{373-273} = \frac{F-32}{180} = \frac{K-273}{100}$$

$$K-273 = \frac{(F-32)100}{180} = \frac{5(F-32)}{9}$$

$$K = \frac{5}{9}(F-32) + 273$$

1. If the temperature of a room is 25°C what is its temperature in degree Fahrenheit.
2. The normal core of a body is 96.7°F what is the core temperature in degree Celsius
3. The temperature of an object is -40°F what is its equivalent on the Celsius scale.

4. Man has been able to produce temperature as low as -612K . what is the temperature in the centigrade and Fahrenheit scale

Solution

$$1. \quad F = \frac{9C}{5} + 32 = \frac{9 \times 25}{5} + 32$$

$$= 45 + 32 = 75^\circ\text{F}$$

$$2. \quad C = \frac{5(F-32)}{9} = \frac{5(96.7-32)}{9}$$

$$= \frac{5 \times 64.7}{9} = 35.9$$

$$3. \quad C = \frac{5(F-32)}{9} = \frac{5(-40-32)}{9}$$

$$\frac{5}{9} \times -72 = -40^\circ\text{C}$$

$$4. \quad K = 273 + C, \quad C = K - 274$$

$$= -612 - 273 = -885^\circ\text{C}$$

$$K = \frac{5}{9}(F-32) + 273 = (K-273) \frac{9}{5}$$

$$F = (K-273) \frac{9}{5} + 32$$

- Q₁. 8.00m^3 of oxygen is under a pressure of 490N/m^2 . What will be the pressure needed to reduce the volume to 2.00m^3

Solution

$$P_1 V_1 = P_2 V_2 = P_2 = \frac{P_1 V_1}{V_2}$$

$$= \frac{490 \times 8}{2} = 1960\text{N/m}^2$$

- Q₂. 2.80m^3 of air is under pressure of 360N/m^2 . What pressure will be needed to reduce it to 0.4

Solution

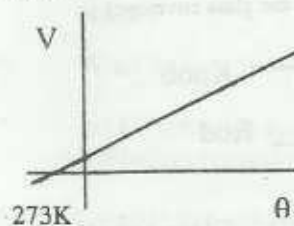
$$P_2 = \frac{P_1 V_1}{V_2} = \frac{360 \times 2.8}{0.4} = 2520\text{KN/m}^2$$

Charles Law

Has pressure to be constant but Boyles law has temperature to be constant.

$$\text{Formular} = V_1/T_1 = V_2/T_2$$

Graph



Ideal Gas Equation

This is the combination of the three gas laws.

From Charles's law $t = \text{constant}$

$P/t = \text{constant}$. When combined the equation gives

$PV/t = \text{constant}$

$$\frac{P_1 V_1}{T_1} = \frac{P_2 V_2}{T_2} \text{ this is idea gas equation}$$

Expansion of Solids

Change in length is directly proportional to original length.

$$\Delta l \propto \Delta t$$

Equating both proportionalities

$\Delta l \propto \Delta t l$ introduce a constant

$$\Delta l = \alpha \Delta t l$$

$$\alpha = \Delta l / \Delta t l$$

Electric Charges and Structures of Matter

Matter ordinarily is composed of three elementary particles, proton, electron and neutron. Normally the atom is electrically neutral that is positive and negative charge within the atoms are equally some of the electron surrounding the nucleus may not be tightly bound so that an atom could lose one or more of its electron and so ceases to be neutral that we have a net positive charge on the other hand. Other atom could accept electrons and become negatively charge. We therefore have two types of charges positive and negative charge for example.

(i) When a glass rod is rubbed with silk, it acquires a positive charge while silk acquire negative charge.

(ii) When fur is rubbed with hard rubber the formal acquire positive charge while the later acquire negative charge.

Law of Conservation of Charge

The law of conservation of charge states that total quantity of charge in any process remain unchanged.

Law of Repulsion and Attraction of Charges

In a conductor (metal) the electron surrounding the nucleus are not so tightly bound to it but are free to move around in the material. Therefore these free electrons continually enter and leave the electron cloud of the neighbouring atom. Therefore in metals electron are the means by which charges are conducted.

Insulators (non-metal): Electrons are tightly bound to the atom and so they are not free to move within the material. Free electron are quite few so there is no motion of charge through insulator.

Method of Producing

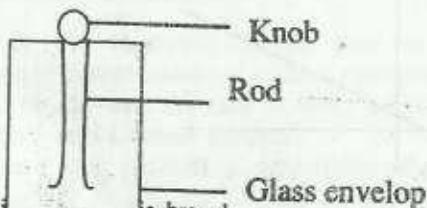
1. Conduction: Suppose A, B are two good metal spheres A is positively charge while B is neutrally charge when B is brought in contact with A so that they touch some electron in B are attracted to A they are actually passaged over to A the result is the formal neutral sphere B become charged. If however, had negative charges and B neutral either of these process is referred to as charging by conduction.

2. Charging by Induction: A conductor can be charged without touch or contact by bringing it close to a charge body. This is known as charging by induction.

The Leaf Electroscope

It consist of two stripes of movable gold leaves which are connected by a metal rod (outside the glass envelope)

How does it Work



If a glass rod (positive) is brought near the knob, separation of charge occurs in the leaf which now repel each other. On removing the charging glass the charges in the conductors no longer remain separated so the leaves will collapse. For quantification the gold leaf can be used to quantify that charge for quantification we note that the angular divergent of the leaves is proportional to the quantity of charge Q on the leaf i.e $\theta \propto q^n$ as that if the electroscope is calibrated, it can then be used to determine the value of quantity of charge (q).

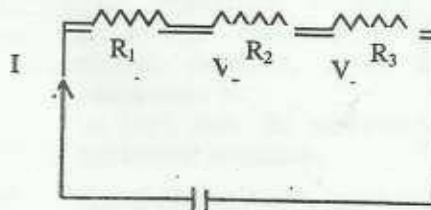
Some Terms of Electricity

Potential Difference: Is the conditions in moving a unit of charge from one point to another.

$$V \propto I; V = KI, K = \text{resistance}$$

$$V = IR - \text{Ohm's Law}$$

Resistors in Series connection



$$E_R = V_1 + V_2 + V_3 \text{ but } V = IR$$

$$V_1 = IR, V_2 = IR_2, V_3 = IR_3$$

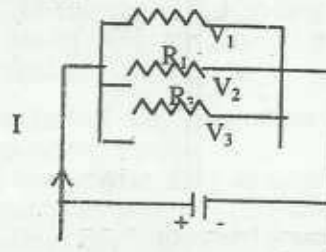
$$V_1 = IR = IR_1 + IR_2 + IR_3$$

$$= I(R_1 + R_2 + R_3)$$

$$R = R_1 + R_2 + R_3$$

When resistors are in series connections the same current flows across each resistor but the voltage drop is different

Resistors in Parallel



$$V_1 = I_1 R_1$$

$$V_2 = I_2 R_2$$

$$V_3 = I_3 R_3$$

When resistors are in parallel connection the potential difference or the voltage drop across each resistor is the same but the current flow is different.

$$V = V_1 = V_2 = V_3$$

$$I = I_1 + I_2 + I_3$$

$$I = V_1/R_1 + V_2/R_2 + V_3/R_3$$

$$V/R = V(1/R_1 + 1/R_2 + 1/R_3)$$

$$1/R = 1/R_1 + 1/R_2 + 1/R_3$$

Power in a Circuit

$$P = IV \text{ current} \times \text{voltage} \dots \dots (1)$$

From Ohm's law

$$V = IR \dots \dots (ii)$$

Put eq (2) into eq (1)

$$P = I \times IR = I^2 R \dots \dots (iii)$$

From eq (ii)

$$I = V/R \dots \dots (iv)$$

Put eq (iv) into eq (i)

$$P = V/R \times V = V^2/R \dots \dots (v)$$

Physical Quantities

One of the attributes of science is the concept of measurement, which tend to ask question that reflect how amount, long and big etc. especially in our study of physics thus observation and data collected as a result of our measurement are express in terms of certain fundamental quantities called physical quantities.

A physical quantity is same thing that can be measured quantitatively in relation to sub-choosing unit example are length, mass, time, it has been found that it is possible to define all terms of one three basic one's namely length, mass and time these are called fundamental quantities. The unit of these basic quantities are called

fundamental unit, they include kilogram (mass), Metre (length), second (time).

A combination of the fundamental quantity gives a derive quantities. This is because this quantities are derivable from the fundamental quantities. They include area = length x breath

Velocity = $\frac{\text{change in distance}}{\text{Time}}$

Density = $\frac{\text{mass}}{\text{Volume}}$

Momentum = Mass x velocity etc

The unit of these derived quantities are derived unit e.g m/s, Kg.m³.

Scalars and Vectors

Scalar quantity is any physical quantity that is completely specified by a single distance, they are treated as ordinary real numbers which obeys all the regular rules of algebraic addition, e.g length, mass, volume, energy, etc

Vector quantity is any physical quantity that require magnitude and direction for their complete specification, hence vector are characterized by their value and distance, e.g velocity, acceleration, force, electric field, displacement.

Addition of Vectors

In adding vector it is very important to consider both sides and direction of the vector quantities it will be necessary for us to identify a single vector which have the same effect of two or more vector such a vector is called a resultant vector.

We can add vector which act in a straight as follow e.g 11cm and another 5cm opposite to the direction of 11cm.

$$11\text{N} \leftrightarrow 5\text{N}$$

$$11 + (-5) = 11 - 5 = 6\text{N}$$

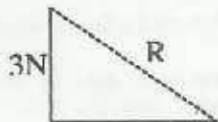
The same direction

$$\rightarrow 11\text{N}$$

$$\rightarrow 5\text{N}$$

$$11\text{N} + 5\text{N} = 16\text{N}$$

For tow vectors acting at an angle to each other the diagonal line drawn from the two vector represent the resultant vector



The ... force $R^2 = 3^2 + 4^2$ (Pythagoras theory)

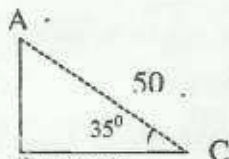
$$R^2 = (+16)$$

$$R^2 = 25$$

$$R = \sqrt{25} = 5\text{N}$$

Example 2

While pulling a load a student exert a force of 50N at angle of 35° to the horizontal. Find the effective force pull the load along the ground. Find the vertical component.



$\cos 35 = \frac{\text{Adj}}{\text{hypotenuse}}$

$$\cos 35 = \frac{x}{50}$$

$$x = 50 \times \cos 35$$

$$x = 41$$

vertical component

$$= F \sin \theta$$

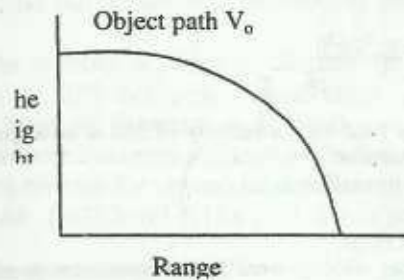
$$= 50 \sin 35$$

= 28.7

Projectile

A projective motion is a curved motion with constant acceleration therefore any object thrown into space which exhibit a curved motion with constant acceleration is called a projectile. We consider projective in two ways.

1. Horizontal projection: if an object is thrown horizontally we would observe that the path is always in parabola.



2. Vertical projectile: The object has initial vertical velocity zero but it has a vertical acceleration due to gravity.

$$\text{Hence } V_g = -gt \text{ eq (1)}$$

$$\text{Height } H = \frac{gt^2}{2} \dots (2)$$

From horizontal $x = V_0 + V_2gt^2$

$$x = V_0t$$

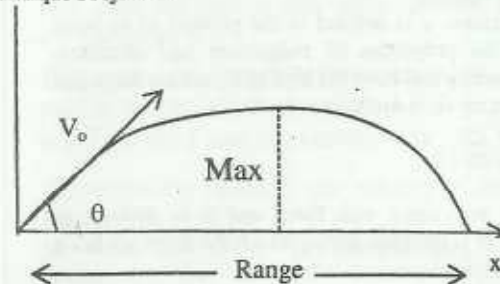
$$h = \frac{gx^2}{2v^2}$$

$$\text{from eq (2)} t^2 = 2h/g$$

$$\text{Time of flight } T = \sqrt{\frac{2h}{g}}$$

$$\begin{aligned} \text{Range (R)} &= V_0t = V_0 \sqrt{\frac{h}{g}} \\ &= \sqrt{\frac{2hV_0^2}{g}} \end{aligned}$$

Oblique Projection



$$V_x = V_0x = V_0 \cos \theta \dots (1)$$

$$V_y = V_0y - gt = V_0 \sin \theta - gt \dots (2)$$

In term of distance of throw after a time interval of (t), $x(\text{range})$ will occur when $y = 0$ i.e $V_0(\sin \theta)t = gt^2/2$, $V_0 \sin \theta = gt/2$

$$2V_0 \sin \theta = gt$$

$$\text{Time of flight} = \frac{2V_0 \sin \theta}{g}$$

the time to attain the max of height

$$t = \frac{V_0 \sin \theta}{g}$$

$$\text{but range 'R'} = V_0gt$$

$$R = V_0 \cos \theta t$$

$$= V_0 \cos \theta \times \frac{V_0 \sin \theta}{g}$$

$$R = \frac{V_0^2 \sin 2\theta}{g}$$

From this formula the range depend on the angle of departure

The range is in Max when

$\sin 2\theta = 1$ and $\theta = 45$ i.e the max angle

$$\therefore R = \frac{V_0^2}{g}$$

$$\text{max Height} = \frac{V_0^2 \sin^2 \theta}{2g}$$

Example

A projectile is fired with a velocity of 320 at an angle of 30° to the horizontal, determine

- Time to reach its maximum height
- Time of flight
- The horizontal range
- With the same velocity what is the maximum possible range

Solution

$$i. T = \frac{V_0 \sin \theta}{g} = \frac{320 \times 0.5}{10} = 16$$

$$ii. \frac{2V_0 \sin \theta}{g} = \frac{2 \times 320 \times 0.5}{10} = 32$$

$$iii. R = \frac{V_0^2 \sin 2\theta}{g} = \frac{320 \times 320 \times \sin 2 \times 30}{10} = 8868.1$$

$$iv. R = \frac{V_0^2}{g} = \frac{320 \times 320}{10} = 10240$$

New First Law of Motion

A simple observation when an object is stationary or at rest it remain stable until someone push it or pull it. In other words a force applied to an object at rest will cause it to move this illustration explain newton first law which states that every object still at rest or move at a straight line in a constant velocity except a force act on it.

Newton Second Law of Motion

Linear momentum, it is defined as the product of its mass and velocity, it has the properties of magnitude and direction, therefore is a vector quantity and have the unit of kgm/s e.g an object of mass 25kg is made to move in 4m/s

Solution

$$\text{Momentum} = 25 \times 4 = 100 \text{kgm/s}$$

Impulse: It is usually associated with force and it is defined as product of force x time. It is the time during which the force act has a unit kgm/s .

Newton second law states that the applied or resultant of force is directly proportional to the change of momentum or the applied force is the product of its mass and acceleration.

Newton Third Law of Motion

Isaac Newton observed that any attempt to express a force end up with a pair of force this implies that forces are always in pair, two force that makes a pair are always of equal magnitude but opposite in direction Isaac Newton called it action and reaction. The law states to every action there is equal and opposite reaction. For example

A force of 210N pulls a load of mass 40Kg despite a constant resultant force of 30N acting between the load and the ground what is the acceleration of the load.

$$\text{Resultant force} = 210 - 30 = 180\text{N}$$

$$180\text{N} = 40a \\ a = 180/40 = 4.5\text{m/s}^2$$

example

A car of mass 16,000kg starts from rest and attained a velocity of 60m/s in 20s. What is the force of the car.

Solution

$$F = \frac{M(v-u)}{t} \\ F = \frac{16000(60-0)}{20} \\ = 16000 \times 60/20 \\ = 48000\text{N}$$

Machine

Machine is a device or tool which allow a force (effort) applied at one point to overcome another force or another resisting force(load)

Types

- Pulleys
- Lever
- screw driver
- wedge

Terms in Machine

Mechanical Advantage: Another name is the force ratio, effort can be a force applied to a machine to overcome the load which is the resistance force, the ability of a machine to overcome a large load through a less effort is known as mechanical advantage.

$$\text{Where } M.A = \frac{\text{load}}{\text{Effort}}$$

Suppose a load of 20N is raised by 4N their M.A = 5, it can also say

$$M.A = \frac{\text{output force}}{\text{Input force}}$$

A machine that has no friction is an ideal machine.

$$I.M.A = \frac{\text{distance moved by input force}}{\text{Distance moved by load}}$$

Mechanical Advantage (M.A) = Velocity Ratio(V.R) in an ideal machine.

For an ideal or perfect machine the work done by the machine equal to the work done in the machine.

Load x distance moved by the load = effort x distance moved by the load.

$$\frac{\text{Load}}{\text{Effort}} = \frac{\text{distance by effort}}{\text{distance by load}} = V.R = I.M.A$$

Therefore for an ideal or perfect machine the mechanical advantage (M.A) or the actual M.A = V.R

Efficiency of a machine

The efficiency of a machine is defined as the work output + input

$$\text{Efficiency} = \frac{\text{work output}}{\text{Work input}} = \frac{\text{power output}}{\text{power input}}$$

Work output is the work done by the machine and input is the work applied

$$E = \frac{L/E}{l/e} = M.A \times 1/V.R \\ = M.A/V.R \times 100$$

An ideal machine has 100% efficiency mean all the work done by the effort is completely used to overcome the load, E.g in a particular system the load is lifted 10cm of each 70cm of movement that operate the device. What is the smallest input force that could lift a 5kilonewton

Solution

$$\text{Load} = \text{effort distance}$$

Effort load distance
 $L = 50\text{KN} = 5000\text{N}$
 $E = x$, Load Distance = 10cm, Effort distance = 70cm
 $5000/x = 70/10$
 $= 5000/7 = 114.3$

Example
 A machine whose efficiency is 75% is used to lift a load of 1000N. calculate the effort put into the machine if the it had a V.R of 4.

Solution
 $75/100 = \text{M.A}/4$
 $= \frac{75 \times 4}{100} = \text{M.A}$
 $\therefore \text{M.A} = 3$
 $3 = 1000/E$
 $E = 1000/3 = 333.33$

Types of Machine

The Lever

It is made up of a steel bar supported by the pivot or fulcrum which allow the rod to rotate. The effort (E) is applied at one end of the lever to overcome or lift the load(L) at some order point. From the principle of moment we can say that $E \times a = L \times b$ so we can also say that $L = a$, $E = b$ by so doing our $\text{M.A} = \text{V.R}$

Classes of Lever

1. First order
2. Second order
3. Third order

These classification is dependent on the position of the pivot or fulcrum. In the first order the fulcrum is in between the effort and the load e.g hammer, scissor and plier.

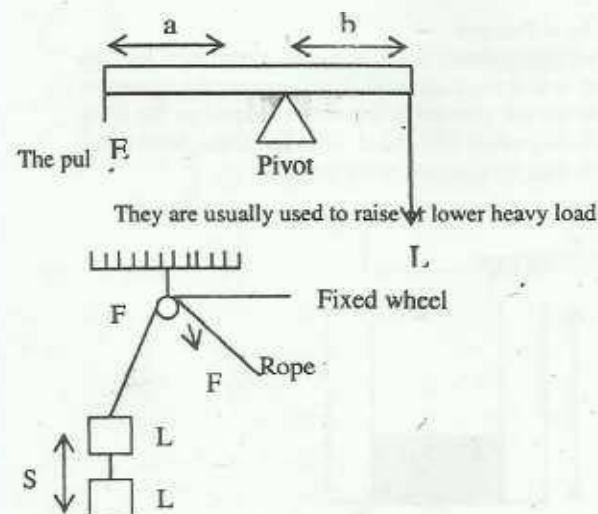
The second order: in this case the load is between the effort and the fulcrum for example is wheel barrow.

The third order: the effort is in between the fulcrum and the load e.g laboratory tongs.

It should be noticed that for the first order the V.R is usually greater than one but could be less or equal to one.

For the second order the M.A and V.R are always greater than one.

While the third order the M.A and V.R are less than one.



The load is attach at one end of the load and effort applied at the other end, the force applied to the load will be equal to the load if the weight applied (the rope) and frictional force is negligible. Hence if frictional force is absent the load will be equal to the effort = (M.A= 1).

Example
 A machine has a V.R is 5 and is 80% efficient what effort would be used to lift a load of 200N

Solution
 $80/100 = \text{M.A}/5$
 Efficiency = $\text{M.A}/\text{V.R} \times 100/1$
 $\text{M.A} = \frac{80 \times 5}{100} = 4$
 $\text{M.A} = \frac{\text{load}}{\text{Effort}}$
 $4 = 200/E$
 $E = 200/4 = 50$

Example

A system contain 4 pulley is used to raise a load of 500N through a height of 20m, if the total work done against friction in the pulley is equivalent to 800 joules find

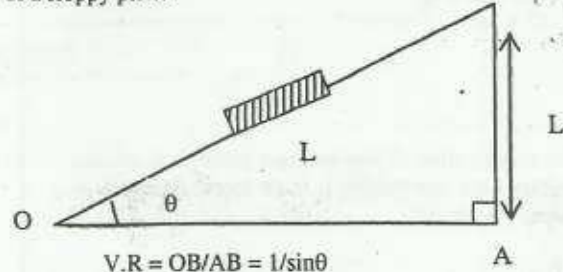
- i. the total work done by effort
- ii. The efficiency of the system
- iii. The effort applied

Solution

- i. Total work done = $\text{WD}(L) + \text{WD}(F)$
 $= (500 \times 20) + 800$
 $= 10000 + 600$
 $= 10800\text{J}$
- ii. Efficiency = $\frac{\text{work output}}{\text{work input}} \times 100$
 $= \frac{10000}{10800} \times 100$
 $= 92.6\%$
- iii. because of 4 pulleys the V.R = 4
 $92.6/100 = \text{M.A}/\text{V}$
 $\text{M.A} = \frac{92.6 \times 4}{100} = 3.7$
 $3.7 = 500/E$
 $E = 500/3.7 = 137.14$

The Inclined Plane

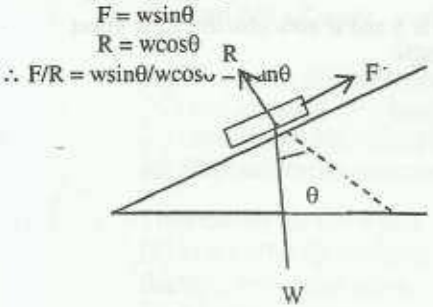
It is used to raise heavy load of a slope with the aid of a sloppy plane.



The flow of a lorry is 2m height a plank is 5m long is used as an inclined plane to raise a load up the lorry. If the effort of these machine is 50% what is the minimum effort required to raise 200N load up the plank.

With the aim of an inclined plane we can determine the coefficient of static friction between two moving surface, placing a wooden block. A on the hypotheses of the inclined plane, the angle of inclination θ is gradually increased until the block is just about to slight down the angle θ is then measured.

R = normal reaction
 F = limitation friction
 With the principle of equilibrium



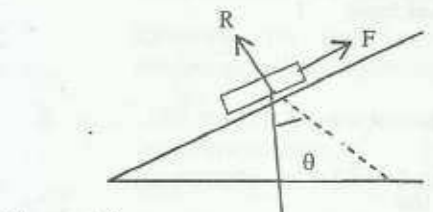
$F = W \sin \theta$
 $R = W \cos \theta$
 $\therefore F/R = W \sin \theta / W \cos \theta = \tan \theta$

$F/R = \mu \therefore \mu = F/R = \tan \theta$
 μ = coefficient of static friction

From the knowledge of inclined plane we can say therefore, that the coefficient of static friction is the ratio of the limiting friction and the normal reaction.

Example

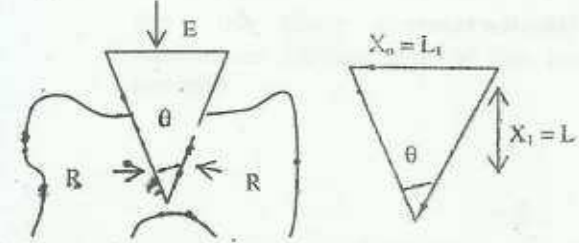
A block of mass 2kg is placed on an inclined plane whole angle of inclination is increased until the block is just about to slight. If the angle of inclination is 60° at this point. Calculate the force parallel to the plane which will just move the block off the inclined plane.



$W = mg \sin \theta$
 $R = mg \cos \theta$
 The total force at $\mu R + mg \sin \theta$
 But $\mu = \tan \theta, R = mg \cos \theta$
 $\tan 60 \times 20 \times \cos 60 + 20 \times \sin 60$
 $1.7 \times 20 \times 0.5 + 20 \times 0.9$
 $17 + 18$
 $= 35N$

The Wedge

This is the combination of two inclined plane. It is usually used to separate bodies held together by a large force. Example of wedge are knives, axes, chisels etc.



As the wedge is driven inside x_1 , the surface being separated through a distance x . if the length of the wedge is L and its thickness T then the M.A neglecting friction = $\frac{\text{load}}{\text{Effort}} = \frac{x_1}{T} = \frac{L}{T}$

Hence a long thin wedge will give a higher M.A than a short thick one.

The Screw Jack

This is an inclined plane wrapped round a cylinder, the hypotenuse form a spiral that constitute the screw thread.

The distance between the successive screw thread is called the pitch when the screw is turned to make one complete revolution the screw i.e the load moved forward through a distance equal to the pitch. Example is a screw driver and a vehicle screw jack device. It consist of a long vertical screw which thread into a heavy base rod which is called the tonny bar. The screw jack is operated by a force at the end of the tonny bar. As the bar moves round once the input force or effort act through a distance equal to the circumference of a circle of radius 'R' where R is the length of the tonny bar. The load as well moves through a distance equal to the pitch of the thread hence the velocity ratio is equal $2\pi R/p$ in the same thing if friction is absent i.e for an ideal machine

$V.R = M.A, M.A = 2\pi R/p$

In practice however, the efficiency of this machine is low due to high frictional force that exist between the screw and the thread in order to reduce friction and improve efficiency lubrication is necessary.

Hydrostat

Liquid and gas can flow and are called fluid before considering their behaviour at rest certain term must be defined.

i. **Density:** The density of a substance of mass(M) and volume(V) is defined as M/V . it is the mass per into volume. The density of water at $4^\circ C$ is $1g/cm^3$ or in S.I unit $1.00 \times 10^3 kg/m^3$.

The relative density is sometimes used and it is given as = $\frac{\text{density of material}}{\text{Density of water}}$

It is a ratio and has no unit

ii. **Pressure:** If a force act on a surface (like the weight of a block on the ground) it is often more useful to consider the pressure rather than the force. The pressure (p) caused by the force acting normally on a surface of area(a) is defined as

$P = F/A = \text{force/Area}$

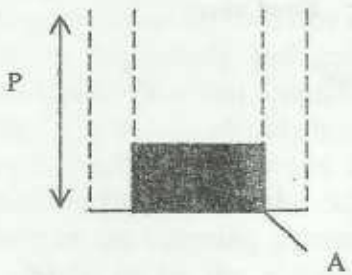
Pressure is therefore, force per unit area. The S.I unit is Pascal which equals the pressure of one Newton per square meter (N/m^2).

Expression for Liquid Pressure

The pressure exerted by a liquid is experience by any surface in contact in it. It increases with depth because the liquid has weight and we define the pressure at a point in a liquid as the force per unit area on a very small area round the point. If the force is ΔF and small area ΔA then the pressure at that point

$P = \frac{\Delta F}{\Delta A}$

In calculation term



ANSWERS TO DELSU POST UTME SCREENING EXERCISE

PAST QUESTIONS

FOR 2009/ 2010 AFTERNOON

SURNAME (Capital Letters) _____

OTHER NAMES _____

JAMB REGISTRATION NUMBER _____

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**SCIENCE , SCIENCE EDUCATION, ENGINEERING, AGRIC.
SCIENCE, COLLAGE OF HEALTH SCIENCE AND DIRECT ENTRY**

ALL PROGRAMMES

ANSWERS TO 2009/2010 [AFTERNOON] DELSU POST UTME QUESTIONS FOR SCIENCES, HEALTH SCIENCES, ENGINEERING, AGRIC. SCIENCES. SCIENCES EDU. AND DIRECT

2009/ 2010 ATTITUDE TEST AFTERNOON

1. **D**
Boys = 16.4
Girl = 15.4
Total = 31.8
Average of boys and girls = $31.8/2$
Average = 13.9
Boys = $31.8/16.4$
Boys = 1.9 approx. 2
Girls = $31.8/15.4 = 2.06$
Ratio = 2:3
2. **A**
Eleven at part of $1/7 =$
 $= 11 \times 100 = 1100$; since it exceed it eleven part
by 100
 $= 7 \times 1100 = 7700$
 $\frac{7700}{100}$
 $= 77$ (eleven part)
 10^{th} part = $10 \times 77 = 770$
3. **A**
 $[15w + 19w + 9w] [19w + 9w]$
 $43w + 28$
3:2
4. **B**
An acute angle is an angle that is less than 90°
and a triangle s three sided $60+ 60+60 = 180$
5. **D**
Pipe A = 20m to fill
Pipe B = 30m to fill
A and B together 50 to fill
Average = $\frac{50}{2}$
 $= 25$
Which is the same as
 $172/7 = 24.5$
Approximately 25
6. **B**
 $1263 - 3 = 1260$
 $1260 / 21 = 60$, $1260/ 28 = 45$, $1260/ 36 = 35$,
 $1260 / 45 = 28$
there is no remainder

To download data means to transfer it to or from computer along a line such as a telephone line , a radio link or a computer network

8. **B**
A computer sales representative is a person who has been chosen to act or make decision on-behalf of the computer manufacturer . He gets information from the buyers and relate back to the producer for change
9. **B**
menu in a computer screen is a list of choices, each represent something that you can do using the computer
10. **C**
E- mail is a system of sending written message electronically from one computer to another
11. **A**
AS program is a set of instructions that a computer follows in order to perform particular task
Arrangement of the sentence in a proper sequence form in a meaningful paragraph.
1 Nnena welcomed a customer early in the day
2. She eased out something from her waist folds.
3. Once visible, Nnena realized it was a pair of gold bangles.
4. He took the bangles and placed some money in the woman's palm.
5. The woman carefully counted the money and left
6. This customer was a peasant woman wearing a disccioured sari and old anklets.
12. **A**
She eased out something from her waist fold.
13. **A**
Nnena welcome a customer early in the day.
14. **C**
Once visible, Nnena realized it was a pair of gold bangles.
15. **A**
let 1st number be x
2nd number be y

3rd number be P

X = 25%

Y = 20%

P = ?

Since the highest percentage is 100: $(26 + 20 - 100) = 500\%$

Since X and Y are 25 and 20 less than P.
therefore $x - y = 25 - 20 = 5\%$.

C

A = 4 hours

B = 3 hours

A and C = 2 hours

Rate at which work can be done = $4 + 3 + 2 = 9$

Rate at C and do the work = $3 - 2 = 1$ hrs.

Rate at which B can do the work = $9 - 1 = 8$ hrs.

A

A face of work = 12 hours

12 hours / 3 = 4 hours ,

If B = 3 , A = 3, $3 + 3 = 6$

A

First tree = x

Second tree = y

$X = 3y/5$

$X = 3 \times 8/5$

= 4.8

In 4 yrs = 4.8

$\frac{4.8}{4}$

4

= 1.2

D

Joseph = 7 days

Nicolas = 8 days

Edwin = 6 days

Position =

1st Joseph = ?

2nd Nicolas = 8

3rd Joseph = 6

$7 + 8 + 6 = 21/3 = 7^{\text{th}}$

D

Man = 14 days

Woman = 16 days

Childs = ?

$14 - 16 = 2$

$2 + 2 = 4$

$16 + 4 = 20$

A

A steamer is a special container used for steaming food such as vegetable and fish

D

when a sentence is expressed in the past tense the verb should be in past tense

23.

B

Rate of Income

C and D

3:4

Ration of expenditure

4:5

Ratio of Savings = ?

Saving of C = $\frac{1}{4}$ of income

Income of C = 3

Saving of C = $3 \times 4 = 12$

Sum of clear expenditure = $4 + 5 = 9$

Diff. = $9 - 7 = 2$

Total Saving = $12 \times 2 = 24$ after expenditure.

Saving of D = $24 - 5 = 19$

The ratio of C and D =

12:19

24.

B

If G[1] = positive which is 1

therefore G[G] should also be positive, from the option C & D are negative while G[1] = 1, the remaining is 2 which is G[6]

25.

C

$1590 / 540 = 30$, $30 \times 35 = 1050$, $1590 - 1050 = 540$

**2009/2010 POST UME SCIENCE AFTERNOON
SESSION
GENERAL PAPER**

1.

C

Mass of Ethanol = 46g

Molar mass of ethanol = C_2H_5-OH

= $12 \times 2 + 1 \times 5 + 16 + 1$

= 46g

Amount in mole of ethanol

= $\frac{0.46}{46}$

46

= 0.01 mole

Heat of combustion of ethanol

= 50×14.3

2×0.01

= $3000 \text{ kJmol}^{-1} \text{ (c)}$

2.

D.

$\frac{1}{v} + \frac{1}{u} = \frac{1}{f}$

Find the L.C.M of u and v and is equal uv

$\frac{u+v}{uv} = \frac{1}{f}$

f(u+v) = uv

fu + fv = uv

fu - uv = fv

$$u(f - v) = -fv$$

$$u = -fv/f-v$$

3. **D.**
 $\int x dx = x^2/2 + C$
 $= 1/2x^2 + C$
4. **Bonus Ans**
 $y = \sqrt{x} \Rightarrow y = x^{1/2}$
 $\therefore dy/dx = 1/2x^{1/2-1}$
 $= 1/2x^{-1/2} \Rightarrow 1/x^{1/2}$
 $= 1/2\sqrt{x}$
5. **B.**
 The angle subtended by a diameter of a circle is supplementary angle.
6. **B.**
 Area of a trapezium = $\frac{1}{2}[a + b]h$
 $= \frac{1}{2}[10 + 6]4 = \frac{1}{2} \times 16 \times 4$
 $8 \times 4 = 32\text{cm}^2$
7. **Bonus**
 If the exterior angle of a triangle = 76°
 The interior angle = $180 - 76 = 104^\circ$
 Let the opposite interior angle be x
 Therefore, the sum in a Δ is 180°
 $x^\circ + 104^\circ + 42 = 180^\circ$
 $x = 180 - (104 + 42)$
 $x = 34^\circ$
8. **B**
 $\text{Profit} = \frac{\text{selling price} - \text{cost price}}{\text{Cost price}} \times 100$
 $\text{Profit} = \frac{S.P - C.P}{C.P} \times 100 = \frac{N862 - N645}{N645} \times 100$
 $\Rightarrow 33.6\%$
9. **C.**
 Speed is faster in middle than along the bank due to reduced force of gravity in the middle portion of the river.
10. **C.**
 The first filial generation will have three red, and one white flowers. Since red is dominant.
11. **A.**
 Population is defined as similar organisms that are found in the same habitat.
12. **A.**
 $C_6H_{12}O_6 \rightarrow 2C_2H_5OH + 2CO_2$

i.e glucose sugar is broken down into ethanol and carbon (iv) oxide.

13. **B.**
 The correct trend in terms of structural organization is $4 \rightarrow 3 \rightarrow 2 \rightarrow 1$
14. **A.**
 Formation of four haploid cells is not a feature of meiosis.
15. **A.**
 The rate of reproduction of animals is a means of measuring primary production.
16. **Bonus Ans**
 $Al_2(SO_4)_3 \cdot 2H_2O$
 % of oxygen = $\frac{O_{16}}{Al_2(SO_4)_3 \cdot 2H_2O}$
 $= \frac{208}{54 + 96 + 192 + 64} \times \frac{100}{1}$
 $= \frac{20800}{406}$
 $= 51.23\%$
17. **D.**
 Obeys the law of conservation of mass which states that matter can neither be created nor destroyed.
18. **D.**
 $T_1 = 273K$ $T_2 = ?$ $V_1 = 2$, $P_1 = 2\text{atm}$, $P_2 = 4\text{atm}$
 $V_2 = 4$
 $\frac{P_1 V_1}{T_1} = \frac{P_2 V_2}{T_2}$
 $T_2 = \frac{P_2 V_2 T_1}{P_1 V_1} = \frac{4 \times 4 \times 273}{2 \times 2} = 1092^\circ K$
19. **B.**
 Neutralization involves a reaction between H_3O^+ and OH^- i.e a reaction between a proton donor and a proton acceptor.
20. **B.**
 Its function is to reduce the iron ore.
21. **A**
 $\lambda = \frac{\text{image height}}{\text{Object height}}$
 $1.56 = 1h/12$
 $1h = 1.56 \times 12 = 18.72\text{cm}$
22. **D.**
 Long sightedness is corrected by using convex mirror.

23. **C.**
 Resonance in circuits is a condition in which the circuit produces a maximum current.
24. **Bonus**
 Magnification = $\frac{\text{image height}}{\text{Object height}} = \frac{\text{image distance}}{\text{object distance}}$
 $= 1h/2 = 1.5/12 \therefore 1h = 3/12$
 0.25
25. **A.**
 The induced E.M.F. is directly proportional to the rate of change of magnetic flux is called lenz's law.
26. **D.**
 Diaphragm relaxes is not among what happens during inspiration.
27. **C.**
 25secs since the photometer reading is usually taken in 25secs.
28. **C.**
 The testa is fused with the part number 3.
29. **B.**
 Reserved food is stored in the part numbered 3.
30. **B.**
 When an operculate fish breathes, it take in water through the mouth and passes it out through the operculum.
31. **D.**
 A capacitor store charges until when required for use.
32. **D.**
 The wheat stone bridge circuit usually have four set of ret of resistors.
33. **B**
 $\frac{C}{F-32} = \frac{100}{180} = \frac{5}{9}$
 $\frac{C}{F-32} = \frac{5}{9}$
 $(F-32)5 = 9C$
 $F-32 = 9C/5$
 $of = 9C/5 + 32 \Rightarrow 9 \times 50 + 32$
 $\Rightarrow 450/5 + 32 = 122^{\circ}F$
34. **B**

$V_1 = 20\text{cm}^3, T_1 = 5 + 273 = 278\text{K} \quad P_1 = 760\text{mmHg}$
 $V_2 = ? \quad T_2 = 35 + 273 = 308\text{K} \quad P_2 = 780\text{mmHg}$
 Using $\frac{P_1 V_1}{T_1} = \frac{P_2 V_2}{T_2}$

$V_2 = \frac{P_1 V_1 T_2}{P_2 T_1} = \frac{760 \times 20 \times 308}{780 \times 278} = \frac{4681600}{216840}$
 $= 21.05\text{cm}^3$

35. **A.**
 Reflection means bending of light rays from their path.
36. **Bonus Ans**
 nth term = $a + (n - 1)d$
 $40 = 8 + (n - 1)3$
 $40 = 8 + 3n - 3$
 $40 = 5 + 3n$
 $40 - 5 = 3n$
 $35/3 = 3n/3$
 $n = 11.7$
37. **B**
 Area of a triangle = $\sqrt{s(s-a)(s-b)(s-c)}$
 Where $s = \frac{a+b+c}{2} \quad s = \frac{3+4+5}{2} = 6$
 Area of triangle = $\sqrt{6(6-3)(6-4)(6-5)}$
 $= \sqrt{6(3)(2)(1)}$
 $= \sqrt{36}$
 $= 6\text{cm}^2$
38. **D.**
 $x + 1 = 0$
 $x = -1$
 $(-1)^3 + k(-1)^2 + 3(-1) - 2 = 0$
 $-1 + K - 3 - 2 = 0$
 $K - 6 = 0$
 $K = 6$
39. **C.**
 $\sqrt{405} = \sqrt{81 \times 5}$
 $= \sqrt{81} \times \sqrt{5} = 9\sqrt{5}$
40. **D.**
 $x^2 - Kx + 42 = 0$
 When $x = 3$
 $3^2 - K(3) + 42 = 0$
 $9 - 3K + 42 = 0$
 $51 = 3K$
 $51/3 = K$
 $= 17$
41. **C.**
 $T = 0.8\text{s}$

$$F = 1/0.08 = 12.5\text{Hz}$$

42. **A.**
 $E = F/q = 4/0.3 = 13.3\text{N/C}$
43. **A.**
 $F = 2500\text{KHz} = 2500 \times 10^3\text{Hz}$
 $C = \lambda f$
 $\lambda = C/f = 3 \times 10^8 / 2.5 \times 10^6 = 1.2 \times 10^2\text{m}$
 $= 120\text{m}$
44. **D.**
Structural isomers are isomers that have the same molecular formula but different structure. Propanal and propanone are structural isomers.
45. **C.**
Sublimation is a process whereby a substance changes directly to gas from solid without passing through the liquid phase.
46. **D.**
Since pH of 3.0 is acidic
47. **C.**
2S to 2P orbital results in the emission of energy.
48. **D.**
Degree of movement of the particles is the fundamental difference.
49. **B.**
Is a neutral atom of metal since the number of proton is equal to the number of electron.
50. **A.**
It produces an alkaline i.e NaOH

ANSWERS TO DELSU POST UTME SCREENING EXERCISE

PAST QUESTIONS

FOR 2010/ 2011 AFTERNOON

SURNAME (Capital Letters) _____

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ALL PROGRAMMES

2010/2011 SCIENCE ENGLISH SCIENCE
OPTION A MORNING

1. B.
They did not desire to be addressed as scenetrics because they do not undergo professional training.
2. B
The lowest degree should be O.N.D which is a graduate.
3. D.
They are more educated and better exposed to professional training.
4. D
Amorous is used to describe someone feelings or action that involve sexual desire.
5. C
Utter disdain from the passage means to dislike a job because you feel or think that it is inferior or important which means it is not a professional job.
6. D
ordeal means a situation that is difficult and unpleasant, hence the nearest in meaning is suffering
7. A
if you are on a spot, you are at the actual place where something is happening
8. C
Incisive here is used to describe the local paper on their thought, or their speech when you approve of their ability to their ability to think and express their idea clearly, briefly, and forcefully, hence, the nearest in meaning is decisive
9. C
Nefarious activities are wicked and immoral activities, hence the nearest in meaning is despicable
10. A
Enchanting means that something is very attractive or charming hence, the nearest in meaning is attractive
11. D
equanimity is a calm state of mind and attitude to life, so that you never loose your temper or become upset, hence, the opposite in meaning is anxiety
12. C
A substance that is lethal can kill people or animals. hence, the opposite in meaning is harmless
13. C
perpetuate a situation, system, or belief, especially a bad one, they cause it to continue, hence, discontinue
14. A
indifferent means something, that you have a complete lack of interest, hence, the opposite is concern
15. A
Repellent means that something that is horrible and disgusting. hence, the opposite is attractive
16. C
Retract here means statement that can be withdrawn back
17. C
biased means to behave unfair as a result of judgment given by you
18. E
exacting here means to describe something that demands handwork and a great deal of care
19. B
A **throng** is large crowd of people
20. B
Impossible means something that cannot be done or happen
21. B
At is used to indicate the place or event where something happens or is situated, hence I was at hearing distance of the speaker
22. D
Fateful means a time when something happened is described as fateful, it considered to be important, and often very bad effect on future event
23. Round-off means to do something as a way of finding an event or performance.
24. B
25. B
Note that first statement is positive, when is used it means what follows should be negative at times is correct.
- 2010/2011 SCIENCE]GENERAL PAPER]
26. D
 $U = 15 \text{ M/s}$, $V = 45 \text{ M/s}$
 $a = 2 \text{ M/s}^2$, $t = ?$
 using $V = U + at$

Oxyacetylene flames used for iron-welding because it makes the iron metal solidify very quickly.

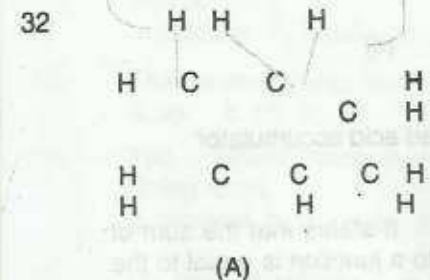
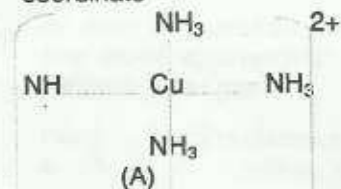
27. C
The structural component that makes up detergent dissolve more quickly in water than COON_a^+
28. C
According to the kinetic theory an increase in temperature cause the kinetic energy of particles to increase
29. B
Oxidizing concentrated hydrochloric, acidic using potassium tetraoxomagnate (vii).

30. B

C	H	O
406.753.3		
100	10	100
406.753.3		
12	1	16
3.3	6.7	3.3
3.3	6.7	3.3
3.3	3.3	3.3
1	2	1

$(\text{CH}_2\text{O})_n = 180$
 $(12 + 2 + 16)n = 180$
 $30n = 180$
 $n = 180/30 = 6$
 $\text{C}_6\text{H}_{12}\text{O}_6$ (B)

31. A
The type of bending in $(\text{Cu}(\text{NH}_3)_4)^{2+}$ is coordinate



33. $V_1 = 300\text{cm}^3$
 $P_1 = 800\text{mmHg}$

$P_2 = 650\text{mmHg}$
 $V_2 = ?$
 $V_2 = P_1V_1/P_2$
 $= \frac{800 \times 300}{650} = 369\text{cm}^2$
 $= 369.23\text{cm}^3$ (B)

34. C
A denser White fume is formed when NH_3 reacts with HCL
35. A
The enzyme responsible for converting sucrose into two simple isomeric sugar is invertase

36. C
 $\log_2 8 + \log_2 14 - \log_2 7$
 $\log_2 (8 \times 14 / 7) = \log_2 16$
 $\log_2 2^2 = 4 \log_2 2 = 4$

37. B
 $x \propto y^2$
 $x = ky^2$
 $k = x/y^2$
 when $x = 4, y = 6$
 $K = 4/6^2 = 4/36$
 $= 1/9$
 $x = y^2/9$
 $y^2 = 9x$
 when $x = 9$

$y^2 = 9 \times 9$
 $y^2 = 81$
 $y = \sqrt{81}$
 $y = 9$

38. B
 $x/2 + 2 \geq 2x - 1$
 $x + 4 \geq 4x - 2$
 $x - 4x \geq -2 - 4$
 $-3x \geq -6$
 $-3x/-3 \leq -6/-3$
 $X \leq 2$

39. C
 $dy/dx = e^x - \cos x + \frac{2x^{1+1}}{1+1} + C$
 $= e^x - \cos x + \frac{2x^2}{2} + C$
 $e^x - \cos x + x^2 + C$

40. D
 $(2n - 4)90$
 $(2(8) - 4)90$
 $= (16 - 4)90$
 $= 12 \times 90$
 $= 1080^0$

41. A
Pure solvents are obtained by evaporation (A)
42. NO ANSWER

$\frac{R_{m1}}{R_{m2}} = \sqrt{\frac{M_{SO2}}{M_m}}$
 Methane = $\text{CH}_4 = 12 + 4 = 16$
 $\text{SO}_2 = 32 + (2 \times 16)$
 $= 32 + 32 = 64$

$$\frac{20}{R_{SO_2}} = \sqrt{\frac{64}{1.6}}$$

$$\frac{20}{R_{SO_2}} = \frac{8}{4}$$

$$\frac{20}{R_{SO_2}} = \frac{2}{1}$$

$$R_{SO_4} = 10 \text{ sec}$$

43.

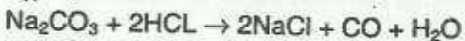
A

$$V_B = 25 \text{ cm}^3$$

$$C_B = 0.2 \text{ mol/dm}^3$$

$$V_A = 20 \text{ cm}^3$$

$$C_A = ?$$



$$n_a = 2$$

$$n_b = 1$$

$$\text{using } \frac{C_A V_A}{C_B V_B} = \frac{n_b}{n_a}$$

$$\frac{C_A \times 20}{0.2 \times 25} = \frac{2}{1}$$

$$C_A = \frac{0.2 \times 25 \times 2}{20}$$

$$C_A = 0.5 \text{ mol/dm}^3$$

44.

C

$$1.2 \times 10^{-3} \times 4.08 \times 10^{-2}$$

$$1.2 \times 4.08 \times 10^{-3+(-2)}$$

$$= 4.896 \times 10^{-5}$$

45.

A

$$212, 201, 190, 179$$

$$1^{\text{st}} = 179 - 11 = 168$$

$$2^{\text{nd}} = 168 - 11 = 157$$

46.

$$\frac{(2n-4) \times 90^\circ}{n}$$

47.

B

$$\frac{C}{1} = \frac{5(F-32)}{9}$$

$$\frac{9C}{5} = \frac{5(F-32)}{5}$$

$$\frac{9C}{5} = F - 32$$

$$F = \frac{9C}{5} + 32$$

$$F = \frac{9C}{5} + 32$$

$$F = \frac{9C}{5} + 32$$

$$F = \frac{9 \times 50}{5} + 32$$

$$F = 90 + 32 = 122^\circ \text{f (B)}$$

$$F = 90 + 32 = 122^\circ \text{f (B)}$$

$$F = 90 + 32 = 122^\circ \text{f (B)}$$

48.

A

The vacuum in the thermos flask prevent heat losses by conduction and convection

49. The Anomation expansion of water occurs at 4°C .

$$50. \frac{1}{F} = \frac{1}{u} + \frac{1}{v}$$

$$\frac{1}{20} = \frac{1}{60} + \frac{1}{v}$$

$$\frac{1}{20} = \frac{v+60}{60v}$$

$$60v = 20v + 1200$$

$$60v - 20v = 1200$$

$$\frac{40v}{40} = \frac{1200}{40}$$

$$v = 30 \text{ cm (D)}$$

51.

A

$$75p^2x^2 - 48y^2$$

$$3(5px - 4y)(5px + 4y)$$

52.

incomplete question

53.

C

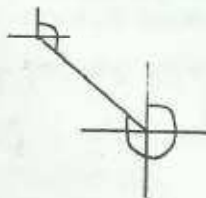
$$P = \{1, 3, 5, 7, 9\}$$

$$Q = \{1, 3, 9\}$$

$$P \cap Q = \{1, 3, 9\}$$

54.

A



50.

B

$$U = 60 \text{ cm}$$

$$F = 20 \text{ cm}$$

$$V = ?$$

$$1/V = 1/F - 1/U$$

$$1/V = 1/20 - 1/60$$

$$1/V = 3 - 1/60$$

$$V = 60/2 = 30 \text{ cm.}$$

55.

$$y = \frac{1}{2x}$$

$$Y = \frac{K}{2x}$$

$$\text{Where } K = 1$$

$$Y = \frac{1}{2x} \quad (c)$$

56.

B

Leclanche cell and lead acid accumulator

58.

C

Kirchhoff's Law: It states that the sum of all currents flowing into a junction is equal to the sum of the current flowing out

59. C
Continuity of an ecosystem depending on constant flow of energy and circulation of matter, however, the amount of energy passed on from decomposers to producers should be reversible.
60. C
A stable self sustaining environment produced by an interaction between biotic and abiotic is an ecosystem (c)
61. $V = 1200\text{mls}$
 $F = 30\text{Hz}$
 $= ?$
 $V = f$
 $= v = 1200^{40}$
 $F = 30,$
 $= 40\text{m (c)}$
62. B
If two plane mirrors in domed at 30° will produce 5 images. (B)
63. A
 $R = \sin i / \sin r$
 $\sin r = \sin i / R$
 $= \sin 30 / 1.5$
 $= 0.3333$
 $R = \sin^{-1}(0.3333)$
 $= 19.47^\circ = 19.5^\circ$
64. A
 $P = \frac{F \times S}{6} = \frac{20 \times 300}{10 \times 60}$
 $= \frac{20 \times 300}{600}$
 $= 10\text{W}$
65. A
Gamma has the greatest penetrating power
66. A
mixture of miracolour and mercuric nitrate is added to a food substance and a white precipitate is formed and when heated gently turns red the food substance is protein (A)
67. C
Starting from one skull end, the vertebrates arranged in the following order:
Atlas, cervical, axis, thonic and lumber (c)
68. B
69. A
The most important adaptation of a bony fish to life in water is the possession of a stream lines shape (A)
70. B
- Double fertilization in higher plants is significant because it ensure that formation of fertile embryo and the endosperm (B)
71. B
72. A
Man is the intermediate host of schistosome
73. D
Pancreas is the organ that secretes two hormones which our causes diabetes (Γ)
74. C
If a married couple have 10 children and they are all girls, that's the X components of the man's sex chromosome was always involved. (c)
75. D
None of the children will be blind because blindness is not heredity
76. A
77. B
78. B
Tunnel length = 5miles
Train length = 1miles
Total length = 5 + 1 = 6
Mph = 60/6 = 10
79. A
80. C
81. D
Europe 20%
United state 0.5%
Africa 1/20%
Team from Europe, US or Africa
 $= 1 - [1/20 \times 0.5] + 1/20]$
 $= 1 - [1/10 + 1/20]$
 $= 1 - 3/20$
 $\frac{20 - 3}{20}$
 $17/20$
82. D
83. incomplete questions without options,
84. C
Increment = 19
12 cars = 7 cars
% increase of sales =
 $\frac{19 \times 100}{12}$
 $= \frac{1900}{12} = 158.3$
85. B
86. C
 $Xy = 2x + y$
 $2a = q3$
 $A = 2 - 3 = 1$

87 D
200q=3hrs
Maths = 50
Minutes spent in maths ?
 $3\text{hrs} \times 60 = 180$
200
 $180 = 1.11$
Minutes spent in maths = $2 \times 1.11 \times 50 = 111$
Approximately 100

88 B

89 B
 $[a-b]/3.5 = 4/7$
A-B = 4/7
 $3-5 = 4/7$
 $B > a = B$

90
P = 3hrs
BP = 6 days
BL = 8 days
BLUE = 12 days to complete the

- contact
- 91 A
 - 92 A
 - 93 D
 - 94 C
 - 95 B
 - 96 B
 - 97 C
 - 98 A
 - 99 C
 - 100 D

ANSWERS TO DELSU POST UTME SCREENING EXERCISE

PAST QUESTIONS

FOR 2010/2011 MORNING

SURNAME (Capital Letters) _____

OTHER NAMES _____

JAMB REGISTRATION NUMBER _____

PROPOSED FACULTY _____

PROPOSED DEPARTMENT _____

QUESTION PAPER CODE: **9:001:A**

TIME: 1 HOUR

- 1. DO NOT OPEN THE QUESTION PAPER UNTIL YOU ARE ASKED TO DO SO**
- 2. ANSWER SHEETS MUST NOT BE TAKEN OUT OF THE EXAMINATION HALL**
- 3. DO NOT DETACH LEAFLETS**
- 4. SHADE THE CORRECT ANSWER IN EACH QUESTION**

**SCIENCE, SCIENCE EDUCATION, ENGINEERING, AGRIC.
SCIENCE, COLLAGE OF HEALTH SCIENCE AND DIRECT ENTRY**

ALL PROGRAMMES

ANSWERS TO 2010/2011 [AFTERNOON] DELSU POST UTME QUESTIONS FOR SCIENCES,
HEALTH SCIENCES, ENGINEERING, AGRIC. SCIENCES, SCIENCES EDU. AND DIRECT

2010 2011 afternoon

1. **A**
Profusely according to the sentence means when the accidents victims are sweating, bleeding or vomiting large amount. Hence, the nearest in meaning is thorough
2. **A**
Obstructing here means to make it difficult or stopping justice from prevailing
3. **B**
Egalitarianism is used to refer to the belief that all people are equal
4. **B**
Take to means to start doing some as a habit
5. **C**
When you described someone as fiery, you mean that they express very strong emotions, especially anger in their behaviour or speech
6. **C**
A high flier is a person who is extremely suspected in his job or schedule.
7. **D**
A chequered carrier or history is a period that is full of good and bad stories
8. **B**
The police man ran the criminal to earth means knocking him down, to the extent that he stop breathing
9. **B**
Garrulous is somebody that take a great deal, especially about unimportant thing
10. **A**
Discord is disagreement and argument between two people
11. **D**
Mortality rate is the number of death during a certain period. Hence, in existence is correct.
12. **D**
The origin of colds is inconclusive because none of their research or investigation was able to prove the origin of cold.
13. **D**
The belief is societal because, they were only expressing their own opinion.
14. **B**
The study of code made in Cirencester over the last time years, the 300 volunteers had kept daily record of their colds.
15. **D**
Adequate research exist to uncover facts about such rare disease.
16. **C**
There is evidence for the theory that common cold is indeed infections.
17. **C**
Quite a few means, he has got a few friends.
18. **A**
The difference between the others option is the spelling centimeter.
19. **C**
Decent is used to described something which is considered to be of an acceptable standard or quality
20. **A**
Restive means you are impatient, board or dissatisfied. Hence, the opposite in meaning is quite
21. **C**
Aberrant means unusual and not socially accepted, hence the opposite in meaning is normal
22. **C**
Hardline means having extreme political belief and refusing to change them.
23. **D**
Indomitable team is a team that is never tired or admit that they have been defeated. Hence, the opposite in meaning is conquerable
24. **C**
Amateur is someone who does something as a hobby and not as a job. Hence, the opposite in meaning is professional
25. **C**
Explicit means something that is shown clearly and openly, without any attempt to hide any thing
26. **C**

GENERAL PAPER

$$45 = 15 + 2^t$$

$$45 - 15 = 2t$$

$$30 = 2t$$

$$30/2 = 2t/2$$

$$t = 15 \text{ seconds}$$

27 C Resistance of a given length per unit area

28 C 1000 watts

29 A diverging lens

30 C

$$V = 1200 \text{ m/s}$$

$$F = 301t^2$$

$$\square = T$$

$$V = F \square$$

$$\square = \frac{V}{F} = \frac{1200}{30}$$

31. B

$$\square = 40 \text{ m}$$

Inductance = 0.84

Frequency = 50Hz

Reactance $X_L = ?$

$$X_L = W_L$$

Where $W_L = 2\pi fL$

$$\therefore X_L = 2\pi fL$$

$$= 2 \times 3.142 \times 50 \times 0.8$$

$$= 251.36 \text{ Ohms}$$

$$\approx 251.40 \text{ Ohms (B)}$$

32. C

$$V = \frac{V_0}{\sqrt{2}}$$

V = effective r.m.s value

V_0 = peak value of voltage

$V_0 = ?$

$$V = 220 \text{ V r.m.s.}$$

But $V_0 = V \times \sqrt{2}$

$$= 220 \times \sqrt{2}$$

$$= 311 \text{ V (c)}$$

33 A

$$\frac{600}{30} \times X = \frac{0.65}{X}$$

20

$$20X = 0.65$$

$$X = 0.033 \text{ A}$$

34 A Charges settle at the tip of body

35 B

$$78 + 273 = 351 \text{ k}$$

36. A

Capacitive (c) = $8 \mu\text{f} = 8 \times 10^{-6}$

Frequency (f) = 50Hz

Reactance (X_c) = 7

But

$$X_c = \frac{1}{2\pi f c}$$

$$= \frac{1}{2 \times 3.142 \times 50 \times 10^{-6}}$$

$$= 398 \eta \text{ (A)}$$

37. C

38 B

$$4^1 2^0 = [4 \times 5^1] + [2 \times 5^0]$$

$$= 20 + 2 = 22$$

$$\begin{array}{r|l} 3 & 22 \\ 3 & 7 \text{ R } 1 \\ 3 & 2 \text{ R } 1 \\ & 0 \text{ R } 2 \end{array} \uparrow$$

$$42_5 = 211_3$$

39 B

The boy spends $\frac{1}{2}$ of his pocket money on books

$\frac{1}{4}$ on pair shorts.

Total money spend = $\frac{1}{2} \times \frac{1}{4}$

$$= \frac{1}{8}$$

40 NO ANSWER

$$7 \frac{1}{2} - [1 \frac{1}{2} + 2] / 5/2$$

$$5/2 - [3/2 + 2/1] 5/2$$

$$15/2 - [3+4] 5/2$$

$$15/2 - \frac{7 \times 2}{2 \times 5}$$

$$\frac{15}{2} - \frac{7}{5}$$

$$\frac{75 - 14}{10} = \frac{61}{10}$$

$$= 6.1$$

41 A

$$I = \frac{PRT}{100}$$

$$240 = \frac{P \times 4 \times 3}{100}$$

$$240 \times 100 = 12 p$$

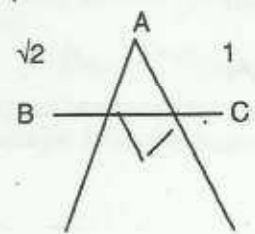
$$p = \frac{240 \times 100}{12}$$

$$P = N 2000$$

42 D

$\tan x = 1$

\sin



$$[AB]^2 = 1^2 + 1^2$$

$$= 1 + 1$$

$$\frac{2}{AB} = \sqrt{2}$$

$$\sin x = \frac{1}{\sqrt{2}}$$

$$\cos x = \frac{1}{\sqrt{2}}$$

$$\sin x + \cos x = \frac{1}{\sqrt{2}} + \frac{1}{\sqrt{2}}$$

$$= \frac{1+1}{\sqrt{2}} = \frac{2}{\sqrt{2}}$$

$$\frac{2}{x\sqrt{2}} \quad \sqrt{2} = \frac{2\sqrt{2}}{x}$$

$$\sqrt{2}$$

43. B
a = p, b = -2p

$$[x-9][x-b]$$

$$[x-p][x-[-2p]]$$

$$[x-p][x+2p]$$

$$x^2 + 2px - px - 2p^2$$

$$x^2 + px - 2p^2$$

44. B
 $1 + \frac{-1}{2} = 2 / \left(\frac{1}{2} + x\right)$
BODMAS
 $1 + \frac{-1}{2} = 2 + \left(\frac{1}{2} + x\right)$
 $\frac{-2}{2} = 2x \left(\frac{2}{1+2x}\right)$
 $\frac{-2}{1} = \frac{4}{1+2x}$
 $-2(1+2x) = 4$
 $-2 + 4x = 4$
 $-4x = 4 + 2$
 $\frac{-4x}{-4} = \frac{6}{-4}$
 $X = \frac{-2}{2} = -\frac{1}{2}$ (B)

46. Incomplete question

47. No of students = 30
No of boys = n
No of girls = 30 - n
Therefore,
Pr (girl) = $\frac{30-n}{30}$ (A)

48. Incomplete questions

49. Incomplete questions

50. D
exterior angle of a rectangle polygon = $\frac{360}{n}$
 $72 = \frac{360}{n}$
 $72n = 360$
 $n = 360 / 72$
= 5 sides

51. B
molar mass of $ZnSO_4 \cdot 7H_2O = 287$
molar mass of $7H_2O = 126$
% of water of crystallise
= $126 / 287 \times 100$
= 43.9%
approximately 44%

52. D
lead and tin

53. C
 $2NaHCO_3 \rightarrow Na_2CO_3 + H_2O + O_2$
Molar mass of $NaHCO_3 = 23 + 1 + 12 + 16 \times 3 = 84g$
Given mass = 16.8g of $NaHCO_3$
Molar mass on $NaHCO_3 = \frac{16.8}{84} = 0.2$ mole
2moles of $NaHCO_3 = 1 \times 22.4$ dm³
 $\therefore 0.2$ moles of $NaHCO_3 = y$ of CO_2
 $y = \frac{0.2 \times 22.4}{2}$
= 2.2 dm³ (C)

54. B
High natural gas

55. D
 SO_2 act as a reducing and an oxidizing agent

56. D
Molar mass of $H_2SO_4 = (1 \times 2) + 32 + (16 \times 4) = 98g$
Molar mass $CuO = 64 + 16 = 80g$
Amount of H_2SO_4 (mole) = $\frac{4.9}{98} = 0.05$ mole
1mole of $H_2SO_4 = 1 \times 80$ of CuO
i.e. 1 mole of $H_2SO_4 = 80g$ of CuO
 $\therefore 0.05$ moles of $H_2SO_4 = \frac{80 \times 0.05}{1}$
= 4g (D)

57. C
molar mass = conc. [g/dm³]
= $\frac{194.2}{0.02}$
= $\frac{9710}{1000}$

= 9.71g

58. D
Hydrogen can be displaced from a hot alkaline solution by calcium
59. D
The gas that can best be collected by downward displacement of air is Ammonia (D)
60. A
Sp represent the hybridization in thyme
61. B
Neutron
62. B
Pb²⁺ salt B
63. C
Haematite is ore of iron
64. B
Cell wall and chloroplast
65. C
The hepatic portal vein in most cases reach in food nutrients because it carries blood from the small intestine to the liver
66. B
Larger, while the lens become thinner
67. D
Producing water during aerobic respiration
68. C
Raw sewage disposal
69. D
hypogeal germination is characterised by the elongation of the epicotyls
70. B
The glomerules is a part of the uriniferous
71. C
72. C
d b e c f
73. A
ONLY [A]
74. C
unaffected by humidity
75. B
I, III, IV

ANSWER TO ATTITUDE TEST

76. A
 $\frac{15000}{8} = 1875$ for one week

IF 4 Lumberjacks = 4 x 1875 = 7500
for 4 weeks = 4 x 7500 = 30,000
77. H = 19 inches
W = 19 inches
L = 19 inches
Required Volume = 19 x 19 x 19 = 6859
78. B
41 - 44 = 3 x 2 = 6
6 + 72 = 78
36 - 66 = 30 x 2 = 60
60 + 62 = 122
79. B
 $1.50 / 3 = 0.5 \times 400 = 2000$
first component = $\frac{1000}{3000}$
80. D
Republican candidate
Received = 1 1/2
Democrat candidate = 900
But Democrat candidate = 2700
 \therefore Republican has 27100 / 1 1/2
= $\frac{2700}{1 \frac{1}{2}}$
= $\frac{2700 \times 2}{2} = 1800$ votes (D)
81. C
Anna average speed 60mph
John average speed 50mph
Anna stops at one hour and 20 minutes 1 hour
= 60m + 20 m = 80m
John stop 1/2 = 0.5 of Anna
= 0.5 x 80m = 40m
82. C
83. C
84. C
85. A
in question were two answers are the same the first one that comes first is the correct answer and should be chosen
A and B is correct but A comes first
86. C
Cap is used in a computer key board to make what you are typing to be in capital letter.
87. A
Times New Roman is a font in Ms Word used to determine the shape you what write up to be.

88. **D**
A phrase is used to express something in a particular way.

89. **D**
Other 3 option are terms of marriage but D is not.

90. **C**
 $3/5 = 0.6$
 $15/.16 = \frac{0.9375}{0.3375}$
HENCE, $3/80 = 0.3375$

91. Science = 4 points
Maths = 3 points
History = 2 points
English = 3 points
Trigonometry C = $2 \times 3 = 6$
History B = $2 \times 4 = 8$
Botany A = $4 \times 4 = 16$
Microbiology B = $3 \times 4 = \frac{12}{112}$
 \therefore Student GPA = $\frac{42 \times 4}{56}$
= 2.86 (B)

In each diagram given below, you will find a logical sequence office boxes. Your task is to decide which of the boxes completes this sequence. To give your answer, select one of the boxes marked A to E.

92. **C**
 $8[6] + 5[6] + 2[6] + 4[6]$
 $48 + 30 + 12 + 24 = 114$

93. **D**
Thursday = 345
Friday = $345 \times 3 = 1035$
Saturday = $1035 \times 3 = 3105$
Sunday = $3105 \times 3 = 9315$

94. **C**
from the above sentence the noun is energy. hence, your identify the noun

95. **A**
the noun of the above question is fish. hence, true identify the noun

96. **C**
the noun from the above sentence is the wooden house, hence **accept** is correct

97. $16.66/100 \times 1200 /1$

$0.15 \times 12,000$
 $0.16.66 = 1999.2$
 $12000 + 2000 = 14,000$

98. Series with 6: 1, 2, 3, 4, 5, 610
 $a = 1$
 $n = 100$
 $d = 1$

$S_n = \frac{n}{2}(2a + (n-1)d)$
 $S_{100} = \frac{100}{2}(2(1) + (100-1)1)$
 $= 50(2 + 99)$
 $= 50(101) = 5050$

If all 6 is replaced by 0 forming a series: 9, 19, 29, 39, ..., 99

$a = 9$
 $d = 10$
 $S_n = \frac{n}{2}(2a + (n-1)d)$

$= \frac{10}{2}(2(9) + (10-1)10)$
 $= 5(18 + 90)$
 $= 5(108) = 540$

Hence, total sum = $540 + 90 = 630$

But both, indices

6, 16, 26, 36, ..., 96

$a = 6$

$d = 10$

$n = 10$

$S_{10} = \frac{10}{2}(2 \times 6 + (10-1)10)$

$= 5(12 + 9)$

$= 510$

Total sum = $510 + 60 = 590$

\therefore Overall sum = $630 + 570 = 120$ (C)

99. - incomplete question

100. **D**
Swetha id the first person mentioned in the gambling game and also her name is the first alphabet S, T, U, V

ANSWERS TO DELSU POST UTME SCREENING EXERCISE

PAST QUESTIONS

FOR 2011/2012 AFTTRNOON

SURNAME (Capital Letters) _____

OTHER NAMES _____

JAMB REGISTRATION NUMBER _____

PROPOSED FACULTY _____

PROPOSED DEPARTMENT _____

QUESTION PAPER CODE: **9:001:A**

TIME: 1 HOUR

- 1. DO NOT OPEN THE QUESTION PAPER UNTIL YOU ARE ASKED TO DO SO**
- 2. ANSWER SHEETS MUST NOT BE TAKEN OUT OF THE EXAMINATION HALL**
- 3. DO NOT DETACH LEAFLETS**
- 4. SHADE THE CORRECT ANSWER IN EACH QUESTION**

**SCIENCE , SCIENCE EDUCATION, ENGINEERING, AGRIC.
SCIENCE, COLLAGE OF HEALTH SCIENCE AND DIRECT ENTRY**

ALL PROGRAMMES

20112012AFTERNOON

1. B
One does not have reciprocal because it can not be shared

2. A

3. C
Cost price = N400
Selling price = N500
Profit = 500 - 400 = 100
Percentage Margin =
$$= \frac{S.P - E.P}{C.P} \times 100$$

$$= \frac{500 - 400}{400} \times 100$$

$$= \frac{100}{400} \times 100$$

$$= \frac{1000}{400} \text{ RECIPROCAL}$$

= 25%

5. B
Disparity is the difference between two or more things especially the unfair one hence, the synonyms is unlikeness.

6. D
Salvage is the act of saving things from a situation in which other things have been damaged

7. A
Exercise means to use the authority given to you to put something into effect.

8. D
Complete working days = 30
30 x 10 = N300
Fine = N2
Actual worked day = 216
300 - 216 = 84
2 x 7 = 14
84 - 14 = 70 he absent for 7 days.

9. D
6+6 = 12+12 = 24
24+24 = 48+12 = 60
60+60 = 120+90 = 210
210 - 90 = 120
210 + 210 = 420
420 - 90 = 330

10. C
1 - 4 = 3

4 - 9 = 5
9 - 16 = 7
16 - 25 = 9
25 - 36 = 11
36 - 49 = 13
49 - 7 = 15
Diff. = 2.
49 + 15 = 64.

11. D
S.P = ?
C.P = N60
Profit = S.P - C.P
Profit = 10% of C.P
% = 10/100 x 60/1
= 600/100 = 6
S.P = C.P + profit
= C.P = 60
Profit = 6
Total = 66

12. B
9+9 = 18
18+9 = 27
27+9 = 36
36+9 = 45

13. C
Average Speed =
Distance/ Time
Time = Distance
Average Speed =
60km at 30km/hr
Time = 60/30 = 2hrs

Total time = 2 + 12
3.2hrs which is 120km at 3.2 hrs.

14. B
4 years ago
Father age = 9+4 = 36
Presently = 36 + 4 = 40

15. B
2 book-keeper and 3 secretaries
A and B separated
D and G separated
D and F competing
If C and F is moved to a new office. We shall have only two bookkeepers
Hence, new combination will be
C and F
D and A
WE can only have 2 combination

16. **B**
Since all watches sold in the store are high standard and some HMT watches are sold in the store, it means some HMT watches are of high standard.
17. **A**
 $100 - 6 = 94$
 $6 + 6 = 12$
 $94 - 6 = 88$
 $12 + 6 = 18$
 $88 - 6 = 82$
 $18 + 6 = 24$

 $82 - 6 = 76$
18. **D**
 $1, 1, 2, \dots, 7, 24, 120, 720$
 $1/1 = 1$
 $2/1 = 2$
 $6/2 = 3$
 $24/6 = 4$
 $120/24 = 5$
 $720/120 = 6$
19. **D**
 $AB > AP,$
 $AB > PB$
20. **C**
Since some mammals are vertebrate, some vertebrate are mammals.
All men are vertebrates
some mammals are vertebrate
 \therefore some vertebrate are mammals
21. **C**
Net and Ball are complementary demand hence, Hook and Fish are also complementary.
22. **C**
For you to play football, you must kick the ball. Hence, for you to smoke, you must put it in a pipe.
23. **A**
Coupled with a genuine interest in your work will go a long way in achievement of success in your profession.
24. **B**
Since A and B must appear the same time. The rule (iii) each candidate will appear at least once CDE is next
25. **D**
A and B cannot appear again. Since they have appeared before, D is only called for a special case, all C and E will appear with him.
26. **C**
Deterred here means something that will discourage somebody from not doing something hence, the opposite in meaning is encourage.
27. **A**
Entities is something that gives you the official right to have or do something hence the opposite in meaning is disqualify.
28. **B**
Buy as use in the sentence is to accept the idea of introducing a new product hence the opposite in meaning is reject.
29. **A**
Taciturn is speaking very little, so that you see unfriendly.. hence, the opposite in meaning is friendly.
30. **B**
Uphold is the past tense of uphold which means to support, maintain, law, principle or decision of people opposite abolished.
31. **D**
I am sorry for failing to attend the meeting yesterday.
32. **B**
It all depend on what he wanted.
33. **D**
Had is the past tense and past participle of have, hence, had stated writing is correct.
34. **A**
Has is the third person singular of the present tense of have, has never been is correct.
35. **B**
I have been writing it for three hours.
36. **A**
Accosted as used in the passage means speaking to someone in an unpleasant or threaten manner.
37. **A**
The author is exonerating himself from allegation of embezzlement.
38. **D**
A person having voting right where he lives.
39. **B**
Abu. Abu is the administrator of the fund and have all the document on how the fund are used.

John is undecided which of the four novels to buy. He is considering a spy thriller. A murder mystery, a gothic romance and a science fiction novel. The books are written by Rothko, Gorky, Burchfield and Hopper, not necessary in that order.

24. John purchases books by the authors whose names come first and third in alphabetical order. He does not buy the books ____
NO OPTION
25. On the basis of the first paragraph a statement (2), (3) and (4) only, it is possible to deduce that
 (i) Rothko wrote the murder mystery of the spy thriller
 (ii) Sparrow published the murder mystery or the spy thriller
 (iii) The book by Burchfield is published by Sparrow which of the following statement is not true.
 (a) iii (b) ii (c) i (d) all of them

ENGLISH LANGUAGE

In each question 26-30 choose the most appropriate option, opposite in meaning to the word(s) underlined

26. The increase in transport fares deterred our club from planning an excursion this year
 (a) deferred (b) irritated (c) encouraged (d) restricted
27. The card entitles you to attend the film show
 (a) disqualifies (b) discourages (c) satisfies (d) proclaims
28. We will surely buy the idea of introducing a new product.
 (a) accept (b) reject (c) refuse (d) think about
29. Ochuko is naturally taciturn
 (a) friendly (b) cheerful (c) garrulous (d) lively
30. The executive governor upheld the decision of the cabinet
 (a) held up (b) abolished (c) undercut (d) reversed

Complete each of the following sentence by choosing the option that most suitably fills the space

31. I am sorry__ to attend the meeting yesterday
 (a) for failure (b) in falling (c) to having failed (d) for failing
32. It all depended on what____
 (a) did he want (b) he wanted (c) does he want (d) did he want

33. My colleagues__ before I arrived
 (a) have been writing (b) started writing (c) wrote (d) had started writing
34. John reported to his manager that he____ oversees
 (a) has never been (b) had never been (c) never (d) is never
35. I started writing this test at 8:00am. It is 10:00am now by 11:00am, I ____ it for three hours
 (a) shall be writing (b) have been writing (c) shall have been writing (d) am writing

Instruction: Read the passage below and answer the questions that follow: My good people, I come before you this week as a man whose honesty and integrity have been questioned. Now, the usual political thing to do when charges are leveled against you is either to ignore them without giving details or provide information. However before I answer any of your questions, let me state categorically that I have not touched a kobo of the N50,000 we contributed. Every kobo of it has been used in defraying political campaign expenses.

As a matter of fact, during one of my "meet with the press" conferences, Tony Agiwa accosted me and said, "honourable senator what about this fund we hear about?" I told him there was no secrete about the fund and that he should meet Abu O. Abu to get details of the fund. I told him, "you will find that the purpose of the fund was primarily to defray political expenses" in answers to another one question, I said that neither contributors to the fund, nor received any special consideration that he would not have received as an ordinary constituent. And I can say that never, since I became a senator, have I made a telephone call for them to an agency or have I gone down to an agency on their behalf. Records will show that that and these records are in the hands of the administrators.

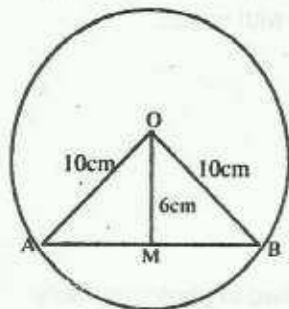
36. Accosted in the passage means
 (a) grossly insulted (b) greeted (c) fought with (d) forced
37. The author is
 (a) exonerating himself from allegations of embezzlement (b) ignoring the allegations of embezzlement (c) Taking part in a political campaign (d) trying to implicate Abu O. Abu, a fellow politician.
38. Constituent in the passage means
 (a) section of the constituency (b) his entire constituency (c) A supporter

$$= \frac{1}{2} \times 3 \times \sqrt{40}$$

$$= \frac{1}{2} \times 3 \times 2\sqrt{10}$$

$$= 3\sqrt{10} \text{cm}^2$$

59.



Length of the Chord
 = AM + MB = 2AM
 But
 $AM^2 = 10^2 - 6^2$
 = 100 - 36
 = 64

Hence, length of chord AB
 = 2 x 8cm = 16cm (A)

60. B

$$y = x^2 + 3x + 2$$

$$0 = x^2 + 3x + 2$$

$$x^2 + 2x + x + 2 = 0$$

$$x(x+2) + 1(x+2) = 0$$

$$(x+1)(x+2) = 0$$

$$x = -1 \text{ or } -2$$

61.

$$2^{-3} \times \frac{16^2}{2^2}$$

$$\frac{1}{8} \times \frac{16^2}{4} = \frac{16^2}{32} = 5$$

62.

$$x \propto y$$

$$x = ky$$

$$k = \frac{x}{y}$$

$$x = \sqrt{9} = 3$$

$$k = \frac{9}{1} = 9$$

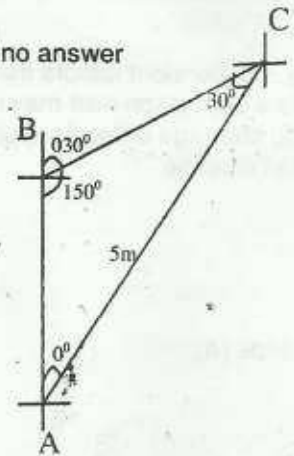
$$x = \frac{1}{9}y$$

$$x = \frac{1}{3} \times \frac{17}{9}$$

$$y = 1 \frac{7}{9} = \frac{16}{9}$$

$$x = \frac{1}{3} \times \frac{16}{9} = \frac{16}{27} \text{ no answer}$$

63.



E180

$$\frac{a}{\sin A} = \frac{c}{\sin C}$$

$$\frac{a}{\sin 90^\circ} = \frac{c}{\sin 30^\circ}$$

$$a = \frac{5 \sin 90^\circ}{\sin 30^\circ} = 10 \text{cm}$$

64.

M = 60kg
 M = 0.2kg
 r = 200m
 v = ?
 MV = mv
 $V = \frac{Mv}{m} = \frac{0.2 \times 200}{60} = 0.67 \text{m/s}$

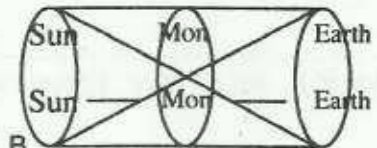
65.

D
 Liquid in glass thermometer instant volumes gas thermometer and thermoelectric thermometer are all types of thermometer using in measuring temperature

66.

Speed = $\frac{\text{Dist}}{\text{Time}}$
 Dist speed x time
 = 2 x 330
 = 660m

67.



68.

B
 Impulse = ft = force x time
 Which is also equal to change in Momentum

69.

C

MA = 800kg
 VA = 80km/h
 MB = 1200kg
 VB = 40km/h

$$M_A + V_A + M_B + V_B = V(M_A + M_B)$$

$$V = \frac{M_A V_A + M_B V_B}{M_A + M_B}$$

$$V = \frac{(800 \times 80) + (1200 \times 40)}{800 + 1200}$$

$$= \frac{64000 + 48000}{2000} = 56 \text{km/h}$$

70.

B
 Charles' law states that the volume of a given mass of gas increases linearly with temperature provided the pressure of the gas remains constant

71.

B

$$H = mc$$

$$M = \frac{H}{c} = \frac{69}{400}$$

$$m = 0.17 \text{kg}$$

$$R = \frac{6}{5} \eta$$

$$R_E = 2\eta$$

$$\frac{6}{5} - R_A = 2$$

$$\frac{6}{5} - \frac{2}{1} = R_A$$

$$R_A = \frac{6-10}{5} = \frac{-4}{5}$$

D

$$C = 0.005F$$

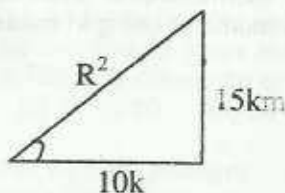
$$V = 240V$$

$$q = CV$$

$$q = 0.05 \times 240$$

$$= 1.2C$$

D
Current is not a scalar quantity because it has magnitude and direction



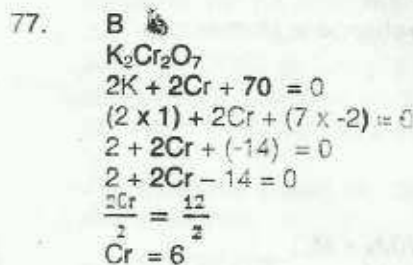
$$R^2 = 10^2 + 15^2$$

$$R^2 = 100 + 225$$

$$R^2 = 325$$

$$R = \sqrt{325} = 18\text{km (C)}$$

76. Copper (C)



78. C

79. C
When temporary hard water is boiled for same time in a kettle, the inner surface of the kettle calcium hydrogen trioxocarbonate (IV) (C)

80. Ethyne (C)

81. A
The maximum number of electron in the L-shell of an atom is 2 i.e $2n^2$ where $n = 1$ for L-shell
 $\therefore 2(1)^2 = 2$

82. A

83.

A solid substance with high melting and boiling points is likely be a covalent compound

D
The advantage of detergent over song is that detergents lather readily with water.

84.

Copper (Cu) (D)

85.

$$\frac{\text{Partial Pressure}}{\text{Total Pressure}} = \frac{430}{750} = 0.579$$

86.

C

87.

D

88.

D

Helium and argon are used in photographer's flash tube

89.

C (Heat)

90.

C

Samarra is a one or two sided dry in dehiscent fruit in which part of the fruit wall grows out into a wing

91.

D

The anatomical evidence usually used in support of the evolutionary relationship among whales, human birds, and dogs is the possession of pentadactyl

92.

C

G - 15

I - 6

S - 7

1m - 23

50

$$\% \text{ imperata} = \frac{22}{50} \times \frac{100}{1}$$

$$= 46\%$$

93.

C

A bee case consists of queen, workers and soldiers.

94.

D

Spirogyra and Pond Skater

95.

D

B E

Nostril → trachea → bronchus

C B E

→ Bronchiole → bronchus

d → b → e → c → f (C)

96.

C

97.

D

Density - dependent factors that operate to regulate a population size may include the following shortage of food supply, fire outbreak, spread of disease.

98.

D

99.

A

100.

15 seconds (A)

ANSWERS TO 2012/ 2013 DELSU POST UTME QUESTIONS FOR SCIENCES, HEALTH SCIENCES, ENGINEERING, AGRIC. SCIENCES. SCIENCES EDU. AND DIRECT

2012 2013 science

English Passage

1. B
Journalist has a natural desire to 'make story' and insidious temptation to twist facts to square with his paper policy.
2. C
A dutiful journalist is a conscientious journalist who must check any tendency to bias.
3. D
Insidious as used in the passage means unpleasant or dangerous and duotone gradually without being noticed.
4. C
A journalist can act against inclination when he becomes weak and decrepit.
5. B
A journalist must resist temptation and check any tendency to bias.
6. C
A breakthrough is an important development or achievement.
7. A
Bold front means facing the situation without fear in doing things which involve risk or danger.
8. C
Newsprint is the cheap, fairly rough paper on which newspaper are printed.
9. C
Nipped on the bud means to permit something from becoming a problem by stopping it as soon as it start.
10. C
A herculean task or ability is one that requires extremely great strength or effort.
11. D
Out paid is something that stop an event from not happening.
12. A
Mindless is anything that is done without thought and will achieve nothing.
13. C
Insignificant matters are issues that are not important.
14. B

15. B
A Bare is part of your body that is not covered by any clothing.
16. C
The point in the story means the important aspect of the story that make it interesting.
17. C
What a relief the stake has ended.
18. C
I say you working in that direction but I did not know exactly where you were going.
19. C
Has is the third person singular of the present tense of hence, hence do you know if the new teacher has arrived yet is correct.
20. A
Contending means to deal with a problem or difficulty or overcome it. Hence the opposite is
21. C
A recession is a period when the economy of a country is doing badly.
22. A
Equanimity is a calm state of mind and attitude to life, so that
23. D
Ravaged means something or someone that has been damaged so much that it is almost completely destroyed hence the opposite in meaning is free from.
24. D
Condone means to accept a behavior that is morally wrong and allow it to happen hence the opposite is forbade which is the past tense of forbid.
25. A
Liable here means you are legally responsible for it. Hence, the opposite is answerable.
26. A
Concord is a sate of peaceful agreement hence, the opposite is disagreement.

Aptitude Test

26. D
A prime number is a number that can divide itself and can also be divided by 1

$$\begin{array}{r|l} 117 & = 39 \text{ R } 0 \\ 147 & = 49 \text{ R } 0 \\ 159 & = 53 \text{ R } 0 \end{array}$$

149 3 = 49 R 2

27. C
 Let number = x
 Result = y
 $x \times \frac{7}{8} = y$
 $\frac{7x}{8} = y$ --- (1)
 $\frac{8}{7} \times \frac{7x}{8} = 15 + y$
 $x = 15 + y$
 $\frac{8}{7} (15 + y) = 15 + y$
 $\frac{8(15 + y)}{7} - 15 = y$
 $\frac{8x - 105}{7} = y$ --- (2)
 Combing (1) and (2)
 $\frac{7x}{8} = \frac{8x - 105}{7}$
 $49x = 64x - 840$
 $49x - 64x = -840$
 $\frac{-15x}{-15} = \frac{-840}{-15}$
 $x = 56$ (C)

28. B
 a, 6, 3, 0, ...
 $T_8 = a + 7d$ --- (1)
 $a = 9$
 $d = 6 - 9 = -3$
 $18 = 9 + 7(-3)$
 $= 9 - 21 = -12$

29. C
 $\log \frac{11}{5} + \log \frac{14}{3} - \log \frac{22}{15}$
 $\log \left(\frac{11}{5} \times \frac{14}{3} \times \frac{15}{22} \right)$
 $\log 7$ (c)

30. D
 The place value of
 $7 = 7000$
 $3 = -30$
6970

31. D
 The branches of a tree are the part that grow out from its trunk and have leaves, flowers or fruit ocean; sea is correct.

32. B
 Relax is a state of calm while work is doing something, they have opposite relationship have lunch: dinner is correct

33. A
 Square and cube have a relationship but with little difference hence line: cylinder is correct.

34. C

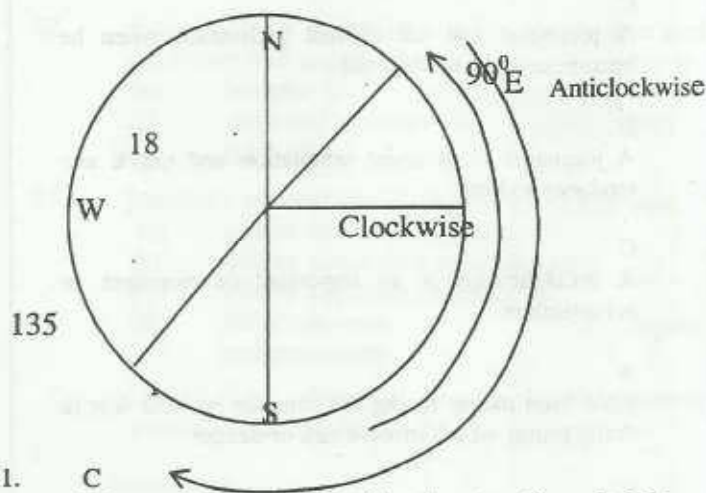
Carnivorous and herbivore has an opposite relationship hence flesh and plant is correct with opposite relationship.

35. A
 Accident and mishap has a relationship of synonym hence, abrupt and sudden has the same relationship.

36. C
 A plough is a large farming tool with shape blade which is pulled across the soil to turn it over, and it is pulled by a tractor.

37. A
 Step son is a son born to their husband or wife during a previous relationship.

38. D
 39. D



41. C
 The number greater than 3 but less than 8 are 5, 6, 7 while the number greater than 6 but less than 10 are 7,8,9
 From the above statement it is only 7 that is greater than 3 less than 8, greater than 6 less than 10.

42. $\frac{20}{100} = \frac{1}{5}$
 $\frac{100}{50} = \frac{1}{5}$
 $\frac{100}{100} = \frac{1}{2}$
 Area = L x b
 $= \frac{1}{5} \times \frac{1}{2}$
 $\frac{1}{1} \times \frac{1}{10} = \frac{10-1}{10} = \frac{9}{10}$
 The new area will 9/10 times more than the original area.

43. C
 A : W → A : W
 4 : 3 3 : 4
 yh 71

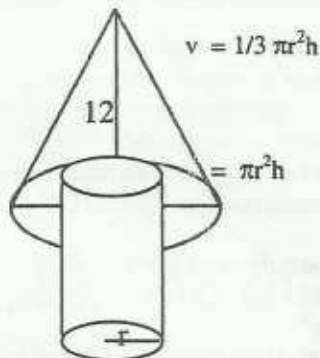
$\frac{1}{2} = \frac{y}{2}$
 $\frac{1}{2} = \frac{7}{2}$

$y = 91$ (c)

44. D
Not less than 35 school children, some as young as nine.
45. D
In view of the reasons that have been cited.
46. C
Also a member of the committee can speak in German.
47. B
Sohan was on parole, he was determined not to fall foul of the law.
48. A
Equation = 8
Number of vowels = 1
Pr. (all vowels together) = $\frac{1}{6}$ (A)
49. Integer is a composite number (D)
50. 9.a.b

**2012/2013 Option A
General Paper (Morning)**

51. A
Pr (Red) = $\frac{1}{4}$
 $\frac{1}{4} \times 40/1 = 10$
 \therefore There are 10 red balls in the box.
Hence, the total number of white balls is $40 - 10 = 30$ balls
52. D
 $r = r$
 $h = 13\text{cm}$



$$v = \frac{1}{3}\pi r^2 h = \pi r^2 h$$

$$= \frac{1}{3}\pi r^2 h = \pi r^2 h$$

$$\frac{1}{3} \times \frac{22}{7} r^2 \times 12 = \frac{22}{7} \times r^2 \times h$$

$$\frac{264r^2}{3} = \frac{22r^2 h}{7}$$

$$1848r^2 = 22r^2 h$$

$$h = \frac{1848r^2}{22r^2}$$

$$h = 84$$

53. B
 $2^{2x} - 5(2^x) + 4 = 0$
 $(2^x)^2 - 5(2^x) + 4 = 0$
Let $y = 2^x$
 $y^2 - 5y + 4 = 0$

$$y^2 \times 4 = 4y^2$$

$$(y^2 - y) + (y + 4) = 0$$

$$y(y - 1)(y + 1) = 0$$

$$y = 4 \text{ or } 1$$

But $y = 2^x$

$$4 = 2^x$$

$$2^2 = 2^x$$

$$x = 2 \text{ Answer}$$

and $y = 2^x$

$$2^2 = 2^x$$

$$x = 0 \text{ answer}$$

$$x = 0, 2 \text{ Answer (B)}$$

54. C
 $125x^{2-1}$
 $(5x - 1)(25x^2 + 5x + 1)$
55. C
 $y \propto \frac{1}{\sqrt[3]{x}}$
 $y = \frac{k}{\sqrt[3]{x}}$
 $k = y \sqrt[3]{x}$
 $y = 6$
 $x = 64$
 $k = 63\sqrt[3]{64}$
 $= 6 \times 4 = 24$
 $y = ?$
 $x = 125$
 $y = \frac{24}{\sqrt[3]{125}}$
 $y = \frac{24}{5}$
 $y = \frac{24}{5} = 4\frac{4}{5}$
answer (c)

56. A
 $\frac{p}{100} \times n = k$
and
 $\frac{7}{100} \times \frac{n}{1} =$

57. A
 $x^2 - 4x - 1 = 0$
 $\frac{x^2 + x - 2}{x^2 + x - 2} = \frac{0}{1}$
 $X^2 + x - 2 = 0$
 $- 2x \times x = -2x^2$

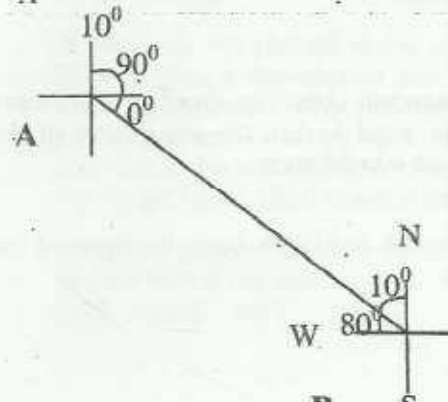
$$X^2 + 2x - x - 2 = 0$$

$$x(x + 2) - 1(x + 2) = 0$$

$$(x - 1)(x + 2)$$

$$X = 1 \text{ or } -2$$

58. A



The bearing of B from A is $90^\circ + 80^\circ = 170^\circ$

59.

$$\text{Mean } \bar{x} = \frac{\sum x}{n}$$

$$\frac{10}{8} = \frac{5 + x + 8 + 14 + 10 + 16}{8}$$

$$\frac{10}{8} = \frac{58 + x}{8}$$

$$\frac{10}{8} = \frac{58 + x}{8}$$

$$53 + x = 60$$

$$X = 60 - 53$$

$$X = 7$$

60.

A

$$a = 3$$

$$n = 8$$

$$S_8 = 80$$

$$d = ?$$

$$S_n = \frac{n}{2} (2a + (n-1)d)$$

$$80 = \frac{8}{2} (2(3) + (8-1)d)$$

$$80 = 4(6 + 7d)$$

$$80 = 24 + 28d$$

$$80 - 24 = 28d$$

$$\frac{56}{28} = \frac{28d}{28}$$

$$d = 2$$

61.

B

$$t = 4\text{cm} + b$$

$$A = L \times b$$

$$60 = (4 + b) \times b$$

$$60 = 4b + b^2$$

$$b^2 + 4b - 60 = 0$$

$$b(b + 10) - 6(b + 10) = 0$$

$$b = 6 \text{ or } -10$$

hence, $L = 4 + 6$

$$= 10\text{cm}$$

62.

63.

B
An Ogive is perfectly called cumulative frequency curve

64.

$$K.E \propto \frac{1}{d} \text{ (b)}$$

65.

D

$$M = 100\text{g} = \frac{100}{1000}$$

$$= 0.1\text{kg}$$

$$K.E. = \frac{1}{2} Mv^2$$

$$= \frac{1}{2} \times 0.1 \times 5^2$$

$$= \frac{1}{2} \times 0.1 \times 25$$

$$= 1.25\text{J}$$

67.

C
When a wooden object is dropped into water contained in a tall beaker, the one quarter of the wooden object is in the water.

68.

A
The quantity of heat in a body is depended on temperature

69.

B
When heat is applied to a brass metal, it expands because its molecules vibrates with greater aptitude.

70.

A

$$V_1 = 80\text{cm}^3$$

$$T_1 = 8 + 273 = 281\text{k}$$

$$P_1 = 740\text{mmHg}$$

$$V_2 = ?$$

$$T_2 = 760\text{mmHg}$$

$$\frac{V_1 P_1}{T_1} = \frac{V_2 P_2}{T_2}$$

$$V_2 = \frac{V_1 P_1 T_2}{T_1 P_2}$$

$$V_2 = \frac{80 \times 740 \times 273}{281 \times 760}$$

$$V_2 = 75.68\text{cm}^3 \text{ (A)}$$

71.

D

$$v = 350\text{m/s}$$

$$f = 5000\text{Hz}$$

$$\lambda = ?$$

$$V = f\lambda = \frac{350}{5000} = 0.07\text{m}$$

$$= 7\text{cm}$$

73.

C
Quality is a characteristics note of a musical instrument while distinguishes it from another not of the same pitch and loudness produced by another instrument

74.

B

$$\frac{E_p}{E_s} = \frac{n_p}{n_s}$$

$$\frac{220}{E_s} = \frac{5}{4}$$

$$E_s = \frac{220 \times 4}{5} = 176$$

The ratio is 5:4

76.

$$C = \frac{g}{v}$$

77.

C
The efficiency of a solid catalyst to increase reaction rates depends on its concentration

78.

D

$$O_2 \rightarrow 22.4\text{dm}^3$$

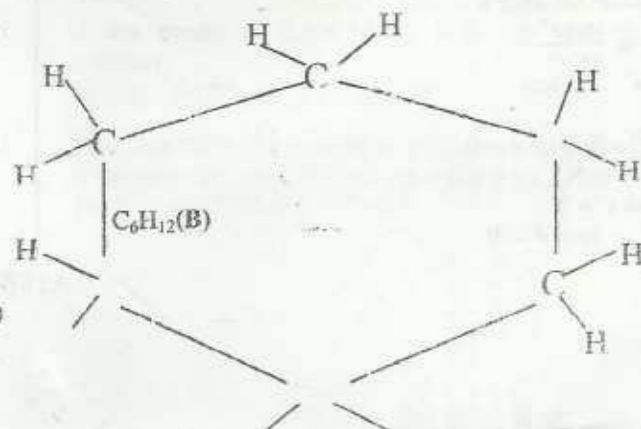
$$2.5\text{moles}$$

$$2.5 \times 2 = 4 = 56.0\text{dm}^3$$

\therefore The volume of 2.5 moles of oxygen at S.T.P. is 56.0dm^3

79.

B
Example of aromatic Compound is C_6H_{12}



ANSWERS TO 2012/ 2013 DELSU POST UTME QUESTIONS FOR SCIENCES, HEALTH SCIENCES, ENGINEERING, AGRIC. SCIENCES. SCIENCES EDU. AND DIRECT

80

B.	K	CL	O
31.9%	28.93%	39.17	
$\frac{31.9}{28.93}$	$\frac{28.93}{28.93}$	$\frac{39.17}{28.93}$	

KCLO

A		
V_s	=	25cm^3
C_B	=	0.2mol/dm^3
V_A	=	20cm^3
C_A	=	?
n_a	=	2
n_b	=	1
$\text{Na}_2\text{Cl}_3 + 2\text{HCl} \rightarrow 2\text{NiCl} + \text{CO}_2 + \text{H}_2\text{O}$		
C_A	=	$\frac{C_B V_B n_a}{C_B V_B n_a}$
	=	$\frac{C_B n_b}{0.2 \times 25 \times 2} = \frac{10}{20}$
	=	$\frac{20 \times 1}{20} = 0.5\text{mol/dm}^3$

82.

B
 $x = 2y$
 $\frac{2x}{2} = \frac{2y}{2} = 14$

83.

H_3O^+ is an acidic ion (D)

84.

Na^+ and Cl^- (A)

85.

C
 $\frac{R_{\text{CH}_4}}{R_{\text{SO}_2}} = \sqrt{\frac{M_{\text{SO}_2}}{M_{\text{CH}_4}}}$
 $\frac{20}{R_{\text{SO}_2}} = \sqrt{\frac{M_{\text{SO}_2}}{M_{\text{CH}_4}}}$
 $M_{\text{SO}_2} = s + (2 \times 16)$
 $= 32 + (2 \times 16)$
 $= 32 + 32$
 $= 64\text{g}$
 $M_{\text{CH}_4} = 12 + (4 \times 1)$
 $= 12 + 4 = 16\text{g}$
 $\frac{20}{R_{\text{SO}_2}} = \sqrt{\frac{64}{16}}$
 $\frac{20}{R_{\text{SO}_2}} = \frac{4}{2}$
 $R_{\text{SO}_2} = \frac{20 \times 2}{4}$
 $= 40\text{sec}$ (C)

86.

A
 $C_A = 0.5\text{mol/dm}^3$
 $V_A = ?$
 $V_3 = 20\text{cm}^3$
 $C_B = 0.1\text{mol/dm}^3$
 $\text{H}_2\text{SO}_4 + 2\text{NaOH} \rightarrow \text{Na}_2\text{SO}_4 + 2\text{H}_2\text{O}$
 $V_A = \frac{C_B V_B n_a}{C_B n_a}$
 $= \frac{0.1 \times 20 \times 1}{0.5 \times 2}$
 $= \frac{2}{1} = 2.0\text{cm}^3$ (A)

87.

A

(IV) ion (A)

88. D
 $P_1 = 750\text{mmHg}$
 $V_1 = 100\text{cm}^3$
 $T_1 = 35 + 273 = 308\text{k}$
 $P_2 = 100\text{mmHg}$
 $T_2 = 308\text{k}$
 $V_2 = ?$
 $P_1 V_1 = P_2 V_2$
 $V_2 = \frac{P_1 V_1}{P_2}$
 $= \frac{750 \times 100}{100}$
 $= 750\text{cm}^3$ (D)

89.

A
 In ecological succession, there is progressive change in species structure, organic matter and energy flow (A)

90.

C
 The environment determines which organism survives to reproduce, supports the idea of survival of the fittest (C)
 No information to provide answers

91.

No information to provide answer

92.

93.

B
 Process of blood clotting includes: Blood exposed to air, tritrogen in plasma changes into threads Red Blood Cells are caught and a clot is formed (B)

94.

D
 Ground nut is not really a nut in the biological sense because it is an achieve

95.

B
 1g of water per hour evaporate from the photometer

96.

B
 A biotic factor which affects the distribution and abundance of organisms in a terrestrial habitat is competition (B)

97.

Mendel's second law of

98.

C
 The optimal temperature of breeding cockroaches is 24 because at that temperature we have high number of cockroach produces (C)

99.

A
 At 15°C cockroaches will not survive (A)

100.

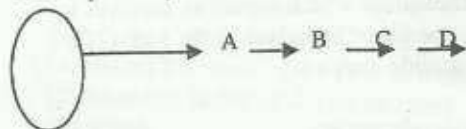
C
 $Gg \rightarrow 15$
 $Ip \rightarrow 5$
 $S_1 \rightarrow 7$
 $Im \rightarrow 23$
 50
 $\% \text{ of imperate spp} = \frac{23}{50} \times 100$
 $= 46\%$

Ecology

Ecology refers to the study of organism in relation to their environments, the concept of ecology embrace different ecosystem and their interaction between one another. The ecosystem environment consist of biotic [living] and abiotic [non-living] contain in the enviroments

In every eco system an individual or organism is influenced or affected by both other living component in the ecosystem as well as non living thing component in the ecosystem. This living and non living component could be regarded as biotic and abiotic factors respectively

For every ecosystem there is always a flow of energy or ecosystem breaks down. Energy gets into the ecosystem from sun, hence, supply from the sun, the ecosystem grinds to degenerating. Energy flow in an eco-system uni- directional i.e flow in a particular direction. The energy from the sun is usually trap [harnessed] by a group of organism wrongly refers to as primary consumer because in responses they are not producer of energy but they can be called transducers as the posseses ability of macro molecules containing in food substances, the direction of energy flow in any ecosystem is often depicted by arrows often seen in a tropical food chain



A = primary consumers B = primary consumers
C = secondary consumers D = tertiary consumers

It should be noted however that energy cannot be lost and, so the amount of energy possession from organism in a particular tropical level to organism in a proceeding tropical level gradually reduces [diminishes] the energy that is stored in higher tropical level e.g soon get converted into detritus [dead litter] the energy in detritus could be trap by sycophant that are adopted to utilize dead decomposing organic matter generally as we move from tropical level to the next energy reduces.

Generally as we move from tropical level to the next

- the energy reduces
- the number of organism gradually tend to diminishes and they brings about the so called pyramid of number and pyramid of energy.

Respiratory System: Taking in oxygen from the surrounding air. Oxygen is extremely important for life. We can survive for weeks without food but only a few minutes without oxygen. Oxygen is used to release energy stored in the chemical fuel we consume as food. This energy is vital for powering our life processes. Broadly, the sequence of processes leading to the release of energy in the living cell is called respiration.

Unicellular Organism: Amoeba, gaseous exchange take place through the plasma membrane. In Amoeba, all part of its protoplasm are within a distance of 0.5mm from the plasma membrane.

Mammalian Respiratory System: Mammalian respiratory system consist of lungs enclosed in thorax and connected to the air outside by a series of branched air tubes (trachea, bronchi and bronchioles). (inspiration), draw in air, is the working together of the rib cage, intercostal muscles and diaphragm.

Gaseous Exchange in Plant: Gases enter and leave the plant through;

1. Stomata
2. Lenticels
3. Root hairs

Population and Population Density: population is the total number of individuals of a given species in a habitat at a given time.

Population density is the average number of individual of a species per unit area of the habitat.

Overcrowding: This is when a population in a given pair of habitat increases beyond a point where the resource in the habitat are not enough to support all the individual in a population.

Causes of Overcrowding

- increases the population size of the habitat.
- High survival rate: animal like rabbit, mice and human always look after their young ones and protect them against predators when they are at a vulnerable age.

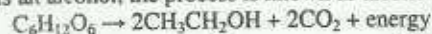
Effect of Overcrowding

- * Shortage of food
- * Predators
- * Disease occur often and spread more quickly in overcrowding condition
- * Competition for few available resources.

Aerobic: In most cells, cellular respiration occurs in the presence of oxygen. The largest number of ATP molecules is formed from one molecule of glucose in this process.

Anaerobic: In some organism, the cell get energy by breaking down glucose in the complete absence of oxygen.

In the cell of certain bacteria, in fungi like yeast and in cell of plant part like germinating seed, glucose is partially broken down to pyruvic acid. This is then converted to ethanol. Since the end product is an alcohol, the process is known as alcoholic fermentation.



Glucose ethanol carbon dioxide

Alcoholic fermentation is of great importance commercially in breweries. Here, yeast breaks down material rich in carbohydrates to produce ethanol in the absence of oxygen.

In animal cells that are respiring anaerobically, the pyruvic acid from glucose is converted to lactic acid instead.

In anaerobic respiration each molecule of glucose yields only two ATP molecules. Compare this with the thirty eight molecules obtained in aerobic respiration.

Genes are discrete units of inheritance which determine hereditary traits such as, type of hair, skin colour and shape of the ear.

INTERACTION AMONG ORGANISMS

In ecosystem, living organisms interact with one another mainly through feed relationship. These interactions may occur among individuals of the same species or between individuals of different species.

1. **Commensalism:** This is an association between unrelated organisms; where one partner the communal benefits while the other, the host is unaffected. The host is said to be neutral since it neither gains from nor is harmed by the association. Commensalism may involve growing together on the same. Substratum, or one on the body of the other for shelter or support e.g. Orchids and epiphytic ferns.
2. **Mutualism:** This is an association between 2 unrelated organisms which is beneficial to both. The closeness of the relationship between the 2 partners varies considerably. In a loose association, the 2 partners are capable of leading independent lives. Eg. Nitrogen fixing bacteria (Rhizobium), and the root of leguminous plants Mycorrhizal-association between a fungus and the rust of a higher plant.
3. **Parasitism:** This is an association in which are organisms, the parasite, lives on another, the host, deriving benefit from it, and causing harm to it. Some plants like witch weed (striga) and deddar (cavscuta) are hesttoparasites such an viruses, bacteria fungi. Dodder, striga and mistletoe common parasitic plants that live on other plants. They have organs called suckers or haustoria which attach the parasite to the host and penetrate into the host's body to absorb food from the hosts sells.

ANSWERS TO DELSU POST UTME SCREENING EXERCISE

PAST QUESTIONS

FOR
2013/2014

SURNAME (Capital Letters) _____

OTHER NAMES _____

JAMB REGISTRATION NUMBER _____

PROPOSED FACULTY _____

PROPOSED DEPARTMENT _____

QUESTION PAPER CODE: **9:001:A**

TIME: 1 HOUR

- 1. DO NOT OPEN THE QUESTION PAPER UNTIL YOU ARE ASKED TO DO SO**
- 2. ANSWER SHEETS MUST NOT BE TAKEN OUT OF THE EXAMINATION HALL**
- 3. DO NOT DETACH LEAFLETS**
- 4. SHADE THE CORRECT ANSWER IN EACH QUESTION**

**SCIENCE , SCIENCE EDUCATION, ENGINEERING, AGRIC.
SCIENCE, COLLAGE OF HEALTH SCIENCE AND DIRECT ENTRY**

ALL PROGRAMMES

ENGLISH Y

1. X A light finger person is someone who is used to taking other people things [hobby]
2. Y It means seeing something, but assuming you did not see it .
3. W
Come to a head means the dispute has come to an important or essential stage were the dispute can be resolved. Hence, the dispute has reached a crucial stage is correct.
4. y A meagre means is an amount of food or money that is too small and is less than what is needed. Hence, inadequate is correct.
5. x
Ephemeral is anything that can not last more than one day. Hence short lived is correct.
6. x
Advertisement in a competing industry, makes a manufacturer to spend so much money to make their brand of product popular, hence lead to an increase in the selling price. Hence x is correct.
7. w Advertisement is not common in a totalitarian countries because the state control production and there is a cut-throat competition because, they are few brand names.
8. w
Advertisement is basically an off-shoot of competition in a democratic countries, where free enterprises lead to competition and competition in turn to advertisement hence, option.
9. y
The exaggeration of advertisement is half truths and distorted facts hence, it mis-inform rather than inform. Hence, it l ambiguous (doubtful and uncertain).
11. z
Defeated is a state where you loss to another person. Hence, the opposite, in meaning is victorious.
12. Y
Profit is the money that you gain by selling something or doing something hence, the opposite is loss.
- 14 Y 15 NO ANSWER 17 Z
13. W
A person that labours when talking, does not talk fluently, hence opposite in meaning is fluently.
17. Fragrance is a smell from flower. Scent is a small from animals or person.
Perfume is liquid that has a strong pleasant smell that you put on your skin.
18. X A circular is a paper intended for bride destruction.
19. Z She dropped her spoon in the soup and tested it.

20. W When rescued from the sea, he was shivering with cold.
21. Z he was so angry he couldn't talk coherently.
22. X He delighted them with his inextensible supply of stories
23. X He came into the room and sat down
24. Z John has been sick since last Friday
25. Borrow is to receive with the implied or expressed intension of returning the same or its equivalent.

Aptitude Test 2013/3014

26. X The other options are state capital while Jos is the name of a state while the capital is plateau.
27. Z
The other options are the name of governors of states in Nigeria but Sanusi Lamido is the governor of Central Bank of Nigeria.
28. Z
Option W and Y have 3 and 5 alphabet which make those two option to be wrong because staple is 6 alphabet. Option x is also wrong because, it has an EA alphabet together . Option Z is correct.
Staple → plates is correct.
29. W
You can form ocean from canoe without loosing any alphabet or adding any alphabet. The other options are four alphabet while ocean is a 5 alphabet.
Canoe → ocean is correct.
30. X
Option Y and Z are 4 alphabet which make it to be wrong because stain is a five letter word. Option W does not have L which means it is wrong hence
Slain → nails is correct
Things to note before answer 31 - 34
From the example in the logic. N means after. After adding both figures multiply by 2
Hence: 3 N 4 = 14
Therefore 3 + 7 x 2 = 14
Example 2
2 N 3 = 10
2 + 3 x 2 = 10
Example 3
6 N 2 = 16
6 + 2 x 2 = 16
31. X
17 N [] = 40
40/2 = 20
20 - 17 = 3
You must divide your answer by 2 because after adding you multiply by 2
32. W
[] N 2 = 40

40/2 = 20
20 - 2 = 18

33. $1 N [] = 6$
 $6/2 = 3$
 $3 - 1 = \underline{2}$
34. W
 $9 N 4 = []$
 $9 + 4 = 13 \times 2 = 26$
35. X 36 Z
37. Y
Cat → kitten
Lion → cab
Goat → kid
Horse → colt
38. Y
Abuja is the Federal Capital of Nigeria while Kampala is the capital of Uganda
39. Z
40. X
The governor of Kano State is Rabi'u Kwankwano
41. Y
The headquarter of the Africa Union is in Ethiopia in Addis Ababa
42. W
 $4 \rightarrow [] \leftarrow 6$
 $4 + 6 = 10 \times 2 = 20$
43. W
 $3\frac{1}{2} \rightarrow [] \leftarrow 7$
 $3\frac{1}{2} + 7 = 10.5$
 $10.5 \times 2 = \underline{21}$
44. Y
Other options are medical science but engineering is not hence engineer is odd.
45. Y
Muslim → Mosque → Koran
Christian → church → Bible
Muslim worship in the mosque and uses Koran as their holy book. While Christians worship in the church and uses bible as their holy book. Hence, minaret is odd.
46. Y Other options are military president but Shagari is a civilian president.
Example in question 47 - 50
Example 1
 $4 A 5 = 15$
 $4 \times 5 = 20 - 5 = 15$
Example 2
 $6 A 7 = 35$
 $6 \times 7 = 42 - 7 = 35$
Example 3
 $9 A 1 = 8$
 $9 \times 1 = 9 - 1 = 8$
47. W
 $9 A 8 = []$
 $9 \times 8 = 72 - 8 = \underline{63}$
48. W
 $4 A (3 A 2) = []$

$4 A 3 \times 2 = []$
 $4A 3 \times 2 = 6 - 2 = 4$
 $4 A 4 = []$
 $4 \times 4 = 16 - 4 = \underline{12}$

49. Z
 $3 A [] = 10$
 $10/2 = 5$
 $3 A 5 = 10$
 $3 \times 5 = 15$
 $15 - 5 = \underline{10}$
50. W
 $(5 A 7) A 2 = []$
 $5 \times 7 = 35$
 $35 - 7 = 28$
 $28 \times 2 = 56 - 2 = \underline{54}$

GENERAL PAPER

51. X
Hint: let the certain number be x
 $15x = 600$ (cross multiply)
100
 $\frac{15x}{15} = \frac{600}{15}$ (divide both sides by 15)
X = 40
52. Y.
Hint: divide 257_{10} by 12 and extract the remainders
 $12 \overline{) 257}$
 $12 \overline{) 21} \text{ R } 5$
 $12 \overline{) 1} \text{ R } 9$
 $0 \text{ R } 1$
195₁₂
53. Y. Number of seconds in 5 hours =
5 hours x 60 mins x 60 secs = 18,000secs
54. X
 $\log_2(x^2 + 5x + 14) = 3?$
Hint: 3 in this case can be represented as $\log_2 2^3$, since $\log_2 2^3 = 3 \log_2 2 = 3$ (since $\log_2 2 = 1$)
1) $\log_2(x^2 + 5x + 14) = \log_2 8$
 $\log_2(x^2 + 5x + 14) = \log_2 8$ (cancel both \log_2 since $2^3 = 8$)
8) $x^2 + 5x + 14 = 8$
 $x^2 + 5x + 14 - 8 = 0$
 $x^2 + 5x + 6 = 0$
 $(x^2 + 2x) + (3x + 6) = 0$
 $x(x + 2) + 3(x + 2) = 0$
 $(x + 2)(x + 3) = 0$
 $x + 2 = 0, x + 3 = 0$
 $x = -2, x = -3$
55. X
Hints: Selling price N10,000, percentage profit = 25%
Cost price = x. in this case we apply the formula for percentage profit which is
 $\% \text{ profit} = \frac{S.P - C.P}{C.P} \times 100\%$
 $25 = \frac{10,000 - x}{x} \times 100$ (cross multiply)
 $25x + 100x = 1,000,000$
 $25x = (10,000 - x)100$
 $25x = 1,000,000 - 100x$

$$\frac{125x}{125} = \frac{1000000}{125} \text{ (divide both sides by 125)}$$

$$x = \underline{8000}$$

56. W

Hint: let one pencil be x and one ruler be y

$$3 \text{ pencil} = 3x = 3x$$

$$1 \text{ ruler} = 1y = y$$

$$2 \text{ pencil} = 2x = 2x$$

$$1 \text{ ruler} = 1y = y$$

$$3x + y = 13 \dots (i)$$

$$2x + y = 8 \dots (ii)$$

Subtract eq (ii) from eq (i)

$$3x + y = 13 \dots (i)$$

$$-2x + y = 8 \dots (ii)$$

$$x = 5$$

substitute the value of x (which is 5) in either eq (i) or eq (ii)

$$3x + y = 13 \dots (i)$$

$$3(5) + y = 13$$

$$15 + y = 13$$

$$y = 13 - 15$$

$$y = -2$$

therefore, the cost of one pencil and one ruler respectively is N5, N3.

57. Z

Hint: The geometric mean of some number a and b is the square root of the product of a and b i.e geometric mean of a and $b = \sqrt{ab}$

The geometric mean of $x, y, 2, h, k = \sqrt[5]{xy2hk}$

$$G.M = \sqrt[5]{2 \times 96} = \sqrt[5]{192} = \underline{14}$$

58. X

$$y \propto 1/x$$

Hint: If y varies inversely to x i.e $y \propto 1/x$

Therefore $y = k/x$ (where k is the constant of proportionality or variation)

$$y = k/x$$

therefore $k = yx$ where $y = 4$ and $x = \frac{1}{2}$

$$k = 4 \times \frac{1}{2} = 2$$

for x when $y = 10$

$$k = yx, k = 2, y = 10$$

$$2 = 10 \times x, x = ?$$

$$2 = 10x \text{ (Divide both sides by 10)}$$

$$10/10 = 2/10$$

$$x = 2/10 = \underline{1/5}$$

59. **Hint:** Apply the formular for sum of angles in a triangle.

Let the remaining angle be x°

$$87^\circ + 33^\circ + x^\circ = 180^\circ \text{ (sum of angles of in a triangle)}$$

$$120^\circ + x^\circ = 180^\circ$$

$$x = 180 - 120$$

$$x = \underline{60^\circ}$$

60. Tangent

61. X

Hint: Convert the left-hand side to base ten using the expanded notation method i.e

$$132_x = 42_{10}$$

$$1 \times x^2 + 3 \times x^1 + 2 \times x^0 = 42$$

Remember any value raised to the power of zero is 1.

$$\text{Therefore } x = 1$$

$$x^2 + 3x + 2 = 42$$

$$x^2 + 3x + 2 - 42 = 0$$

$$x^2 + 3x + (-40) = 0$$

$$x^2 + 3x - 40 = 0$$

$$(x^2 + 8x) - (5x - 40) = 0$$

$$x(x + 8) - 5(x + 8) = 0$$

$$x - 5 = 0, x + 8 = 0$$

$$x = 0 + 5, x = 0 - 8$$

$$x = 5, x = -8$$

therefore $x = 5$ (since x cannot be negative)

62. W **Hint:** apply the formular

$$x^2 = (\text{sum of roots})x + \text{product of roots} = 0$$

$$x^2 - (-4 + 3)x + (-4 \times 3) = 0$$

$$x^2 - (-1)x + (-12) = 0$$

$$x^2 + x - 12 = 0$$

63. Z

Hint: Apply the formula for area of trapezium $\frac{1}{2}(a+b)h$

where $a = 3m, b = 12cm$ and $h = 4cm$

$$\frac{1}{2}(a+b)h = \frac{1}{2}(8 + 12) \times 4 = \frac{1}{2}(20) \times 4$$

$$80/2 = \underline{40m^2}$$

64. W

Hint: let the first number be x , and the second number $x + 8$ and their sum is $x + x + 8 = 18$. The second number is

$$2x + 8 = 18, x + 8 = 5 + 8 = 13$$

$$2x = 18 - 8 \text{ the numbers are } 13 \text{ and } 5$$

$$\frac{2x}{2} = \frac{10}{2} \text{ (divide both sides by 2)}$$

$$x = 5$$

65. W

Hint: Apply the formula $\frac{1}{f} = \frac{1}{u} + \frac{1}{v}$

$$\frac{1}{27} = \frac{1}{9} + \frac{1}{v}$$

$$\frac{1}{27} = \frac{1}{9} + \frac{1}{v}$$

$$\frac{1}{v} = \frac{1}{27} - \frac{1}{9}$$

$$\frac{1}{v} = \frac{1-3}{27}$$

$$\frac{1}{v} = \frac{-2}{27}$$

$$\frac{1}{v} = \frac{-2}{27}$$

$$-2v = 27$$

$$v = \frac{27}{-2} = -13.5$$

$$v = \underline{13.5cm}$$

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$$\begin{aligned} A \cos \theta &= A \cos \omega t \text{ but } \theta = \omega t \\ A \cos \omega t &= A \cos \omega t \quad A = 7, \omega = 0.5\pi, t = t \\ \frac{7 \cos 0.5\pi t}{7 \cos 0.5\pi} &= \frac{7 \cos 0.5\pi t}{7 \cos 0.5\pi} \\ \frac{t}{t} &= \frac{t}{t} \\ t &= t \end{aligned}$$

$$1 = 1$$

Therefore $t = 1$ secs

69. W **Hint:** Apply the equation of motion under gravity i.e $v^2 = u^2 - 2gh$ $a = -g$ because the ball moved upward $v^2 = u^2 - 2gh$ where $v = 0$ (because the ball was thrown upward) $u = 6 \text{ms}^{-1}$ $g = 10 \text{ms}^{-2}$ $h = ?$ $0^2 = 6^2 - 2 \times 10 \times h$ $0 = 36 - 20h$ $0 + 20h = 36$ $20h = 36$ $h = \frac{36}{20} = 1.8$

70. W **Hint:** Apply Newton's second law of motions

$$\begin{aligned} \text{i.e. } R &= \left(\frac{v-u}{t} \right) \\ \text{where } f &= 10N, m = 5kg \\ v - u &= 3 \text{m/s}, t = ? \\ 10W &= 5kg \left(\frac{v-u}{t} \right) \\ 10t &= 5 \times 3 \\ 10t &= 15 \\ t &= 15/10 = 1.5 \text{sec} \end{aligned}$$

71. X

Hint: apply the formular $P = IV$ to obtain the current required to run the appliance where $p =$ power, $I =$ current and $V =$ voltage.

$$\begin{aligned} P &= IV \text{ for } 25W \text{ and } 220V \\ I &= \frac{P}{V} = \frac{25W}{220V} = 0.1A & I &= \frac{P}{V} = \frac{100W}{220V} \\ &= 0.45A \end{aligned}$$

From the answer above the 100 watt bulb will glow more brightly because it requires more current.

72. W

Hint: use the formular $P = IV$

$$\begin{aligned} P &= IV \text{ where } P = 150W \text{ } V = 120V \\ P &= IV \quad I = \frac{P}{V} = \frac{150W}{120V} = 1.25A \end{aligned}$$

73. Z

Faraday's law of electromagnetic induction best describes the operation of an electric generator

74. Z

Hint: Apply the relationship between Celsius and Kelvin temperature i.e

$$\begin{aligned} \theta^{\circ} - 0 &= 100K - 273K \\ \frac{100 - 0}{100} &= \frac{373K - 273K}{100} \\ \theta &= \frac{173}{100} \\ 100\theta &= 173 \\ 100\theta &= -17,300 \\ \theta &= \frac{-17,300}{100} \\ \theta &= -173^{\circ}C \end{aligned}$$

75. W

Hot end = $100^{\circ}C$ cold end = $20^{\circ}C$

Length of rod = 20cm
centre of the rod = $\frac{20\text{cm}}{2} = 10\text{cm}$

Temperature of the centre = ?

$$\begin{aligned} \frac{100^{\circ}C - 20^{\circ}C}{100^{\circ}C - 20^{\circ}C} &= \frac{10\text{cm}}{20\text{cm}} \\ \frac{C - 20}{80} &= \frac{10}{20} \\ 20(C - 20) &= 800 \\ 20C - 400 &= 800 \\ 20C &= 800 + 400 \\ C &= \frac{1200}{20} = 60^{\circ}C \end{aligned}$$

77. X

Solution

pH of juice = 3.80

concentration of hydroxide ion (OH^-) = ?

$$\text{pH} = -\log_{10} \text{H}^+$$

concentration of Hydrogen (H^+) is

$$\text{H}^+ = 10^{-3.8}$$

$$\text{H}^+ = 1.6 \times 10^{-4} = 0.00016$$

$$\text{But } (\text{H}^+)(\text{OH}^-) = 10^{-14}$$

$$\text{OH}^- = \frac{10^{-14}}{0.00016} = 6.3 \times 10^{-11} \text{mol dm}^{-3}$$

78. X

The process presented by the above equation is known as slaking.

Hint: When water is added drop by drop to calcium oxide, it cracks with a hissing noise and breaks up into a powdery form accompanied by the liberation of heat. This process is known as slaking and the end product is calcium hydroxide, $\text{Ca}(\text{OH})_2$, which is more commonly known as slaked lime.

79. X

The modern process of manufacturing steel from iron is by oxidation.

Hint: It is adopted in the linz-Donawitz process or basic oxygen process which involves the blowing vertically down of a high speed jet of oxygen onto molten pig iron from a water-cooled oxygen lance. The heat liberated by the oxidizing reactions maintains the iron in a molten state to allow for the production of steel.

80. X

The periodic classification of the elements is an arrangement of the elements in order of their atomic number. **Hint:** With the discovery of the electronic structure of atoms, it became clear that elements do vary regularly not with relative atomic mass, but with their atomic number which is the basic assumption behind the modern periodic table known as the periodic law.

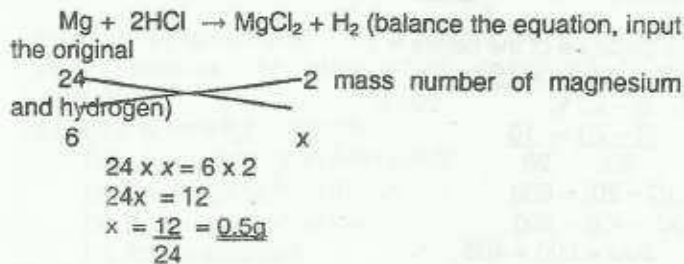
81. Z

helium atoms are chemically overactive because the outer electron shell is completely filled.

Hint: This property is due to their stable duplet or octet structures.

82. Y

Hint: Write out the equation for the reaction between magnesium and hydrogen chloride



83. Z
 In the electrolysis of brine, the anode is carbon.
 Hint: In the electrolysis of brine, the anode consist of series of graphite(carbon) rods dipped into brine contained in a tank.

84. X
 In the electrolytic extraction of aluminium, the function of molten cryolite is to lower the melting point of aluminium oxide.
 Hint: Because the aluminium ore evolves or liberates large amount of heat.

85. Z
 Write the equation of the reaction between HCl and NaOH and balance the equation.
 $HCl + NaOH \rightarrow NaCl + H_2O$
 $1 : 1 : 1 : 1$
 $Ca = 0.05 \text{ moldm}^{-3}$ $Va = 32.00 \text{ cm}^3$
 $Cb = ?$ $Vb = 25 \text{ cm}^3$
 $\frac{CaVa}{CbVb} = \frac{Na}{Na}$
 $CbVbNa = CaVaNa$
 $Cb = \frac{CaVaNb}{VbNa} = \frac{0.05 \times 32 \times 1}{25 \times 1} = 1.6$
 $Cb = 0.064 \text{ moldm}^{-3}$

86. Y
 If concentrated H_2SO_4 is added to sugar and warmed gently, the sugar changes from white to brown and finally a black mass of carbon. In this reaction, concentrated H_2SO_4 is acting as a dehydrating agent.
 Hint: concentrated tetraoxosulphate (VI) acid is able to remove the element of hydrogen and oxygen in the form of water from compound like sugar, ethanol, methanoic acid and ethanedioic acid.

87. X. C_4H_{10}
 Hint: The four carbon atoms and ten hydrogen atoms in the butane molecule can be linked in two different ways which will satisfy the valences of carbon and hydrogen.

88. X
 The final products of the reaction between methane and chlorine in the presence of ultraviolet light are hydrogen chloride and tetrachloromethane.
 Hint: The products are formed by the successive replacement or displacement of the hydrogen atoms in the methane molecule by the chlorine atoms. The hydrogen is not released as free hydrogen but in combination with chlorine as hydrogen chloride.

89 BONUS ANSWER

90. Z

100. W The organic molecules present in the nucleus is/are DNA.
 Hint: The nucleus contains chromosome which are made up of NDA (deoxyribonucleic acid).

The surface of an alveolus in a mammal is well supplied with tiny blood vessels known as capillaries.
 Hint: Oxygen diffuses into the capillaries and enters into the red blood cells and combines with haemoglobin to form red blood cells into alveolus.

91. X
 The nitrogenous substance that is excreted by birds in order to conserve water is uric acid.
 Hint: Uric acid is relatively insoluble in water animals living on land that have needs to conserve water excrete uric acid as white semi-solid. Birds, reptiles and insects excrete uric acid.

92. W
 Mr. Ochuko usually works in a swamp during which he neither eat food nor drink any water. Which of these diseases Mr. Ochuko cannot contract.
 Answer: Cholera
 Hint: because cholera can be contracted by drinking water or milk infected with cholera and by eating food and vegetables infected with cholera.

93. Z. One of the following statements is not true of viruses. Answer: They can be seen by ordinary light microscope. Hint: They are visible under the highest magnification of light microscope. They can only be seen under an electron microscope.

94. Z A gene which expresses itself only in the homozygous condition is recessive.
 Hint: A character or trait is said to be recessive when it is not expressed in the presence of another character.

95. X
 A characteristic of the phylum coelenterate is that they possess a gut with a single opening.
 Hint: It is the only option with the characteristic features of the phylum coelenterata.

96. Y
 The smallest living organisms which share the characteristic of both living and non-living matter are viruses.
 Hint: They can only reproduce in the cells of living organism. Feproduction is the only characteristic of living organisms possessed by viruses. When in a non-living medium they because crystallized. This characteristics feature also makes them a non-living matter.

97. Answer: 22.2 (inconclusive)

98 BONUS

99. Z
 Thunderstorm can be beneficial to plants because it add nitrates to the soil.
 Hint: During thunderstorm, the lighting produced causes the atmospheric nitrogen to combine with oxygen to form various oxides which combines to form a weak solution of dioxonitrate (III) acid reaches the soil, it combines with mineral salts in the soil to form nitrates which the plants absorb.

Nucleus

Items contains in the nucleus are the chromosomes which handle definite site called the log. Since genes are basic hereditary, while we could say that the nucleus is concerned with ensuring the transfer of trait from parent to off-spring.

Functions of Nucleus

- The nucleus controls directly or indirectly most of the activities of living cell. The removal of the nucleus results in the death of cytoplasm.
- The nucleus carries chromosomes on which hereditary material/gene are coded.
- The DNA in chromosome gives information for the manufacturer of the proteins in the cell.
- The nucleolus produces several kinds of RNA (ribonucleic acid) which are passed out of the nucleus to the cytoplasm to a manufacturing protein (DNA dose not pass out of the nucleus).

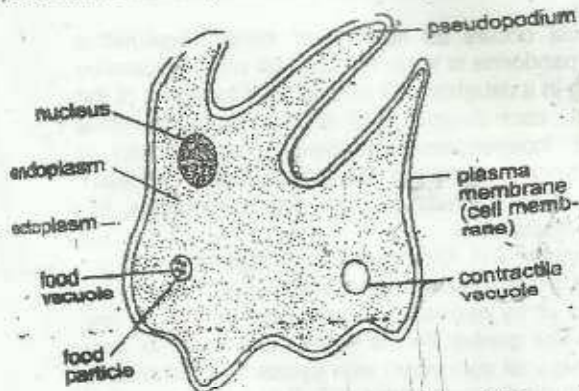
INVERTEBRATE ANIMAL

These are animals lacking backbone: invertebrate animals are by far the most nervous animals on earth nearly, 2 million species have been identified to date: these 2 million species make up about 98% of all the animals identified in the entire animal kingdom. Some scientist believed that true number of invertebrate species may be as high as one million and classifying invertebrate life has just begun, invertebrate life in a vast range of habitat from forest and desert to caves and sea bed; mud, in ocean and lakes they form part of the plankton. An immense array of miniature living organism that drift in the surface current, invertebrate are also found in the soil beneath our feet and in the air above our head, some are powerful fliers using wings to propel themselves e.g insect but other particularly the smallest invertebrate float on the slightest breeze.

Protozoa

Phizopods, sardine, sarcodine, are protozoa with pseudopodia of one type or the other as adult locomotory organelles. They vary in shape and structure they do not have lagalle, no cilia and no pellicle, the body form is unstable, members are free living fresh water, marine and terrestrial. Some hower are parasite e.gontameobahistolytica.

Generally amoeba have relatively few organelle and they are asexually by fission, asexual reproduction when present involves flagellated or amoeba gametes.



Microscopic appearance of Amoeba

They are usually obtained or collected from surface of mud in pond or from the surface of sun-merged dead leaves. Amoeba is a grayish blow of translucent protoplasm about 0.035 millimeter in length, it is irregular in shape protoplasm is made up of two parts I' ectoplasm, the outer narrow clear area while II' endoplasm is the inner granular area within the endoplasm are the following structures:

- **Nucleus:** the nucleus is oval shaped and important in cell division, it is usually seen when the animal is stained.
- **Contractile Vacuole:** The contractile vacuole is spherical and it is filled with fluid.
- You may have one or more food vacuole size
- You may have crystals and other substance e.g oil globules

Locomotion

Amoeba can crawl over a surface using the temporary formed pseudopodia which anchors the animal to the sub stratum in the way amoeba progress by a sort of flowing movement called amoebic movement, the mechanism by which pseudopodia flows and changes shape is uncertain.

Feeding

The pseudopodia are used to engulf the pray flagellates, ciliate, bacteria, algae or dead remains of larger animals such as nematodes and ratifies along with a drop of water forming the food vacuoles aided by digestive juice from the cytoplasm by cytoplasmic streaming. Digestion takes place in the vacuole aided by digestive juice from the cytoplasm. In digestible materials is left behind as the animal moves away or by exocytosis through any part of the body.

Respiration

The entire body surface is used for gaseous exchange through diffusion.

Osmoregulation and Excretion

The expulsion of fluid occurs anywhere on the body surface by the expansion and contraction of the contractile vacuoles, nitrogenous waste materials pass into solution and diffusion outward through ectoplasm.

The Movement of Substance in and Out of the Cell

We would recall that the cell represent the basic unit of life and present in organism performing function which becomes manifested in organ generally, it is for this reason that certain molecules raging from water to macro molecules are transported either into the cell or out of the cell. This mechanism of movement is brought about by five major means they include;

- diffusion
- osmosis
- Active transport
- pinocytosis
- phagocytosis

Diffusion: This refers to the movement of molecules from a region of higher concentration to a region of lower concentration along a concentration gradient. Diffusion is exhibited in large multi-cellular organism especially with reference to gas. In tissue for example, the cell may low concentration of oxygen and so oxygen from the surrounding blood will diffuse into the cell. The movement of CO₂ is ion in other direction.

Osmosis: This is a special case of diffusion. It refers specifically to the movement of water molecules from a region

of higher potential through a semi-permeable membrane certain concepts are important when describing osmosis and these include:

Osmotic Pressure: This is the pressure required to prevent the net movement of water into an acquired solution through a semi-permeable membrane thereby preventing the volume of the solution from increasing.

Hypotonic: This refers to an acquired solution with a lower osmotic potential with reference to the cell. When a cell is placed in a hypotonic solution, it imbibes water (takes in water), swells and becomes turgid for animal cells, the cell may eventually burst, but in the case of plant cells, possessing a rigid cellulose cell wall, the cell does not burst but stays turgid. In the case of red blood cells, the red blood cells imbibe water and when they eventually burst the term "hemolysis" is used to describe it.

Hypertonic: This refers to a solution that is having a higher osmotic potential in comparison to the one when a cell is placed in a hypertonic solution, water molecules flow out of the cell as it is placed in an hypertonic solution. The shrinking of the cytoplasm from the cell membrane is described by the term "crenation" or "shrinkage".

Isotonic: This refers to a solution having similar osmotic potential as the cell. Under such circumstances the cell neither loses nor gains water. Cells in large multi-cellular organisms are usually in isotonic solution or condition.

Active Transport: It refers to the movement of molecules or ions from a region of lower concentration to a region of higher concentration i.e. against the concentration gradient, because it is against a concentration gradient, energy is required and energy is supplied and this energy is supplied in the form of ATP or the reaction could be coupled to the movement of electrons, in the electron transport chain.

The movement of sugar molecules or various amino acids into the cell is active by active transport, various mechanisms of transport as been studied such as

- ABC transporters
- Secondary transporters
- Phosphotransferase system (PTS)

Pinocytosis: This involves the movement of small molecules or substances across the cell membrane. It is also referred to as cell drinking. Usually involves the formation of micro-pinocytotic vesicles, when substances such as water molecules are to be transported by this mechanism, the molecules get engulfed in the micro-pinocytotic vesicle, which gradually condenses together, (combination of various micro-pinocytotic vesicles) the vesicle then moves close to the cell membrane and then fuses with the membrane and gradually empties its contents.

Phagocytosis: The principle and process is similar to pinocytosis, but in this case the molecules within phagocytotic vesicles are much larger than the substances contained in pinocytotic vesicles. The mechanism by which white blood cells eat up germs is basically by phagocytosis. The process can also be called **cell eating** and a beautiful illustration is in the micrograph by which amoebae catch up diatoms.

In a particular organism, it is not compulsory that each of these five mechanisms occurred concurrently (together)

but however at least one of the above mechanisms occur at a time, enabling substances to move across the cell.

One of the postulates of the cell theory is that cells originate from other cells pre-existing cells. There are basically two types of cell division these are:

- **Mitosis:** Which occurs in somatic or body cells
- **Meiosis:** It usually results in the formation of two daughter cells which are genetically identical with the parent cell. On the other hand

Meiosis: It results in the formation of four daughter cells, each having half the genetic constitution of the parent cell.

The processes of cell division overlap each other, but for the purpose of study, these processes have been broken down into what will be referred to as **phase**, no matter the process of division there is usually a time interval prior (before) the commencement of a cell division, and the commencement of another cell, it is referred to as **inter-phase**.

BIOLOGY 001

CHLAMYDOMONAS

Chlamydomonas organism which is found in stagnant water, usually along with other forms, reproduction in Chlamydomonas can either be vegetative (sexual) or asexual. Vegetative reproduction results in daughter cells in which the amount and quality of genetic material is the same both in the daughter cell and in the mother cell. This kind of cell division which maintains the quality and amount of genetic materials is known as mitotic division in Chlamydomonas, a cell that is about to divide loses its flagella. Sexual reproduction involves union of sex cells called gametes. This cell pair by the posterior ends. This pairing is said to be isogamous because the pairing cells are morphologically identical. The cytoplasm of the pairing cell is used (plasmogamy) and the flagella are lost. The two nuclei fuse (karyogamy) producing a diploid zygote. The zygote increases a thick cell wall which is called a zygospore.

Chlamydomonas also undergoes an alternative of generation in which the asexual generation is the dominant generation.

Colonial Form in Algae

By colonial forms we mean those in which the organisms exist as an aggregate of cells. The cells may all be flagellated (motile or non-motile).

Pandorina and Volvox are examples of motile or flagellated colonial algae. While Pediastrum are examples of non-motile algae.

Pandimia occurs as a species of water vegetative reproduction in Pandorina is achieved through a successive division resulting in daughter cells all enclosed together, at the appropriate time: each daughter cell is released from the matrix to assume an independent life. Sexual reproduction is achieved by anisogamous pairing. Under favourable conditions the single cell in the colonies assumes gametic functions, the single pairs by flagellar ends.

Plasmogamy and karyogamy occur followed by meiosis. In some species the colonies may be unisexual i.e. producing only one gamete or by asexual, i.e. producing both male and female gametes. The genus Volvox shows more complex forms of colony and they are all connected with cytoplasmic strands in Volvox not all cells produce daughter cells. It is the larger cell at