NNAMDI AZIKIWE UNIVERSITY (UNIZIK)

POST UTME PAST QUESTIONS

(2006 TO DATE)

GRACE GROUP, UNIZIK

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NNAMDI AZIKIWE UNIVERSITY, AWKA
POST-UME SCREENING EXERCISE, 2006/2007
FOR
ENGINEERING AND ENVIRONMENTAL SCIENCES
SEPTEMBER 15, 2006

Shade only one answer using HB pencil only
Time allowed: 1 hour
INSTRUCTIONS:

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

1. In the match against the Rangers team, the E n y i m b a boys turned out to be the dark horse (A) played most brilliantly (B) played their usual form (C) won unexpectedly (D) lost as expected (E) won as expected.

2. He spoke with his heart in his mouth.(A) courageously (B)with such unusual cowardice (C) with a lot of confusion in his speech (D) without being able to make up his mind (E) with fright and agitation.

3. The leader in today's issue of punch Newspaper focuses on inflation. (A) president (B) headline (C) editorial (D) columnist (E) proprietor.

4. All his plans fell through. (A) failed (B) were accomplished (C) had to be reviewed (D)were rejected (E) fell.

5. He stared at her. (A) glanced (B) peeped (C) looked (D) Gazed (E) fixed

6. As he was a gullible leader, his followers took advantage Of him. (A) He was weak and unable to enforce his authority (B)He was partial and unfair in dispensing Justice (C) He was simple minded to a fault (D) He was Slow to act (E) He was lacking in education and experience in everyday affairs.

7. His summary of the lecture was brief and to the point (A) careful (B) precise (C) accurate (D) exact (E)crucial.

8. Do you have the same aversion as I do for home videos? (A) bitterness (B) dislike (C) criticism (D) indignation (E) preference.

9. I did not think she could be so easily taken in by his pretences. (A) flattered (B) deceived (C) pregnated (D) Overcome (E) blackmailed

10. The witness was guilty of swearing to a statement he knew to be false. (A) forgery (B) perjury (C) libel (D) slander (E) affidavit.

11. Most of his observations were wide of the mark. (A) comprehensive (B) irrelevant (C) pertinent (D) came rather late (E) unacceptable.

12. The clerk refused to answer for the mistakes made by the manager and his assistants. (A) to reply to (B) to give an answer (C) to explain (D) to accept responsibility (E) to account for.

13. Good citizens should take the part of a good government when it is being attacked by the foreign press. (A) speak in support of (B) explain the part played by (C) act like a representative of (D) emphasize the progress made by (E) outline the virtues of.

14. The principal of my school has a variety of peculiarities. The most conspicuous is the way he gesticulates when making a serious point.(A) shows anxiety when making a serious point (B) breaks down when talking seriously (C)uses his hands and arms as a sign (D) bows his head in humility (E)shakes his head from one side to the other

15. He heard the loud noise of the huge air-raid siren. (A)buzz (B) crack (C) rumble (D) whistle (E)wail.

16. One of the stages of the creative process is the incubation period. This refers to the period when (A) the idea is firmly fixed through repetition (B) the person suddenly comes upon the idea (C) the person thinks over the idea (D) the idea yields concrete results (E) the idea is given up.

17. When a man is immune to an illness, he is (A) opposed to it (B) attached to it (C) hated by it (D) protected against it (E) addicted to it.

18. The two boxers were neck and neck up all the sixth round but the seventh and final round, the bigger one lost ground.(A) could no longer stand on his feet (B) failed to maintain his position (C) was beaten (D) became dizzy (E) became a punching bag.

19. He uses his savings to bring up his nephew (A) lead (B) accompany (C) feed (D) support (E) conduct

20. Whenever I travel abroad, I always bring, on my return, photographs, postcards and small items as souvenirs. (A) mementoes (B) remembrance (C) memorials (D) memorable (E) property.

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

21. When the beggar was tired he_____ down by the roadside. (A)lied (B)laid (C)layed (D)lay(D) lain

22. He did not like_____ leaving the class early. (A) we (B) us (C) our (D) ourselves (E) our selves.

23. Before the operation the dentist found that his patient's teeth_____(A) have long decayed (B)have long been decayed (C) have long being decayed (D)had long decayed (E)had been decayed.

24. The employer, not the salesman and his representative,_____responsible for the loss of revenue. (A)are (B)are being (C)are never (D)have been (E) is.

25. The boy was born before his parent, actually got married and so the court has declared him_____ (A) illegal (B)illegitimate (C)illicit (D)unlawful (E)untenable.

26. As he was still owing me two naira, I was careful not to _____him any more money. (A) credit (B)loan (C) borrow (D) extend (E) lend.

27. Last week the _____ at the theatre was the largest I had ever seen. (A) assembly (B)congregation (C) convention (D) audience (E) crowd.

28. The green snake which lives in green grass is using a perfect _____ (A) ambush (B) undercover (C) camouflage (D) shelter (E) subterfuge.

29. In order to carry out the necessary post mortem examination, the dead body was_____
(A) extracted   (B) extradited   (C) exiled
(D) exhumed   (E) expelled.

30. Remember this matter is strictly_____
(A) between you and I   (B) among you and I
(C) among you and me   (D) between you and me
(E) between you and myself.

31. A rectangular picture 6cm x 8cm is enclosed by a frame ½cm wide. Calculate the area of the frame. (A)15 sq.cm. (B)20 sq.cm.   (C) 13 sq.cm (D)16 sq. cm   (E) 17sq.cm.

32. If the four interior angles of a quadrilateral are $(P + 10)°$, $(P - 30)°$, $(2P - 45)°$ and $(P + 150)°$, then P is: (A)125° (B)82° (C)135° (D)105°   (E)60°

33. The annual profits of a transport business were divided between the two partners A and B in the ratio 3:5. If B received ₦3,000 more than A, the total profit was: (A)₦5,000   (B)1,800
(C)₦12,000   (D)24,000   (E)₦8,000

34. In a school there are 35 students in class 2A and 40 in class 2B. The mean score for class 2A in an English Literature examination is 60.0 and that for 2B in the same paper is 52.5. Find, to one place of decimal, the mean for the combined classes.   (A)1.5   (B) 56.0 (C) 56.2 (D) 56 (E)56.5

35. Which of the following fractions is less than one - third?   (A)22/63   (B) 4/11
(C)15/46   (D)33/98 (E) 122/363

36. A baking recipe calls for 2.5kg of sugar and 4.5kg of flour. With this recipe, some cake were baked using 24.5kg of a mixture of sugar and flour. How much sugar was used?
(A) 12.25kg   (B) 6.75kg   (C) 8.75kg
(D) 15.75kg   (E) 8.25kg.

37. If N560.70 is shared in the ratio 7:2:1, what is the smallest share? (A) N392.49   (B)N56.70 (C)N113.40   (D)N112.14   (E)N56.07

38. If $2x + 3y = 1$ and $x - 2y = 11$, find $(x + y)$
(A) 5   (B) -3   (C) 8   (D) 2   (E) -2

39. A sum of money was invested at 8% per annum simple interest. If after 4 years, the money amounts to N330, find the amount originally invested.   (A) N180   (B)N165 (C)N150   (D)N200   (E)N250

40. If $m=3$, $p=-30$, $q=7$ and $r=5/2$, evaluate $m(p + q + r)$ (A)19.50   (B) 19.15   (C)18.95 (D)18.05

41. A man walks 1km due east and then 1km due north. His displacement is (A) 1km N15°E
(B)1km N30°E (C) √2km N 45°E (D) √2km N60° E (E) 2km N75° E

42. A palm fruit dropped to the ground from the top of a tree 45m tall. How long does it take it to reach the ground? ($g = 10ms^{-2}$) (A)9s (B)4.5s   (C)6s (D)7.5s (E)3s

43. Of the following, which is different from the others?   (A)x-rays   (B)gamma rays (C)cathode rays   (D)ultraviolet rays (E)Infrared rays.

44. Which of the following elements are real magnetic materials?   (A) Iron, Steel and Nickel (B)Copper, Steel and Iron   (C)Lead, Iron and Brass   (D)Glass, Lead and Steel (E) Stone, Air and Iron

45. A 10g mass placed on the pan of a balance causes an extension of 5cm. If a 15g mass is placed on the pan of the same spring balance the extension is:
(A)3.3cm (B)6.5cm (C)7.5cm (D)10.8cm (D)15.0cm

46. If the pressure on 100cm³ of Ideal gas doubled while its Kelvin temperature is halved, then the new volume of the gas will become (A)25cm³ (B)50cm³   (C)100cm³ (D)200cm³   (E)400cm³

47. A substance has a half life of 3 min, After 6min, the count rate was observed to be 400. What was its count rate at zero time? (A)200   (B)1200   (C)1600   (D)2400 (E)800

48. A room is heated by means of a charcoal fire. An occupant of the room standing away from the fire is warmed mainly by
(A)convection   (B)radiation (C)conduction (D)reflection (E)induction

49. When an atom loses or gains a charge, it becomes: (A)an electron (B)an ion
(C)a neutron   (D) a proton   (E)a cathode

50. The process of energy production in the sun   is: (A)nuclear fission
(B)nuclear fusion (C)electron collision
(D)radioactive decay   (E)electron transfer.

SOLUTION TO 2006/2007
NAU POST - UME SCREENING PAST
QUESTIONS
FOR
ENGINEERING & ENVIRONMENTAL
SCIENCES -COMPILED BY BRAINFOLDER

1. "Dark horse" - a person about whom little is known, especially one with unexpected abilities. **Ans. C**
2. E - with fright and agitation
3. C - editorial
4. A - failed
5. D - gazed
6. A - He was weak and unable to enforce his authority
7. D - exact
8. B - dislike
9. B - deceived
10. Perjury is committed when one swears to a statement known to be false **Ans. B**
11. B - Irrelevant
12. D - accept responsibility
13. A - speak in support
14. C - uses his hands and arms as a sign
15. D - whistle
16. C - the person thinks over the idea
17. D - protected against it
18. B - failed to maintain his position
19. D - support
20. A - mementoes
21. Lie (recline or rest state)
Past tense is lay while Past participle is lain
Ans. D - lay
22. C - our
23. D - had long decayed
24. The main person in the question is the employer (singular) **Ans. E - is**
25. B - illegitimate
26. E - lend
27. D - audience
28. C - camouflage
29. D - exhumed
30. D - between you and me
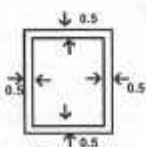
31.

From the diagram, both length & width increases by 1cm i.e 7cm by 9cm.
D/4, Area of frame =Area of bigger rectangle - Area of smaller one
i.e A = (7x9) - (6x8)
=63 - 48
=15cm²   **Ans A**

32. Sum of int.<s of a quad=360⁰
I.e.p+10+p-30+2p-45+p+15=360
5p-50=360
5p=410
P=82⁰   **Ans B**

33. Let the total profit =x and A's share =y;
Sum of ratio = 8 and the difference =2
D/4, $\frac{2x}{8}$ = 3000
$\frac{X}{4}$ = 3000
X=₦12,000   **Ans C**

34. For class 2A, Total score =35x60
=2100
For class 2B, total score =40x52.5
= 2100
Combined mean = $\frac{2100+2100}{35+40} = \frac{4200}{75}$
= 56.0   **Ans. B**

35. One third =$\frac{1}{3}$ = 0.3333   **Ans. C**

36. Total kg for a recipe =7kg .A multiple of 7 closer to 24.5 is 21 (i.e. 7x3)which is equivalent to 3 recipe. Remainder; 24.5-21=3.5 (half of 7) Recipe of 3.5kg can be made by using half of each which is 1.25 sugar. Hence, total mass of sugar used=2.5x3 + 1.25= 7.5+1.25
= 8.75kg   **AnsC**

37. Sum of ratio =7+2+1 =10
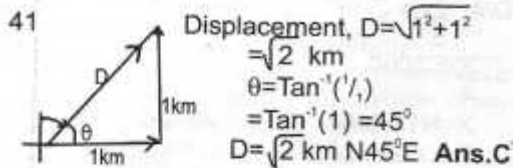Smallest share= 1/10 x 560.70
=₦56.07   **Ans E**

38. 2x +3y = 1 ___(1)
X - 2y = 11 ___(2)
Or x=11+2y___ (3)
Subst. (3) into (1)
2(11+2y) +3y =1
22+4y + 3y =1
22 +7y =1
7y=-21; y=-3
From (3), x=11+2(-3)
=11-6 =5
D/4, x+y =5-3 =2   **Ans.D**

39. T = 4yrs, R=8%, A=N330
using A=p (1+RT/100)
330 =p (1+4x8/100)
330= 1.32p
p=$\frac{330}{1.32}$ = N250   **Ans.E**

40. M=3, p=-30, q=7, r=⁵/₂

Then, $m(p+q+r) = 3(-30+7+5/2)$
$$= 3(-23+^5/_2)$$
$$= 3(\frac{-46+5}{2})$$
$$= 3(-^{41}/_2)$$
$$= -61.5 \quad \text{NONE}$$

41

Displacement, $D = \sqrt{1^2+1^2}$
$$= \sqrt{2} \text{ km}$$
$$\theta = Tan^{-1}(^1/_1)$$
$$= Tan^{-1}(1) = 45°$$
$$D = \sqrt{2} \text{ km N45°E } \textbf{ Ans.C}$$

42.
$U=0, g=10, H=45m$
Using $H = ut + ^1/_2 gt^2$
$45 = 0 + ^1/_2 (10)t^2$
$45 = 5t^2$
$t^2 = 9$
$t = 3secs$ **Ans.E**

43. Consider the electromagnetic spectrum – RIVUXY **Ans. C**

44. **A.**

45. Using $m = ke$
$10 = 5k$
And $k = {^{10}/_5} = 2g/cm$
If $m = 15g$, then,
$15 = 2e$
$e = {^{15}/_2} = 7.5cm$ **Ans. C**

46. $V_1 = 100cm^3, T_1 = T, P_1 = P,$
$T_2 = {^T/_2}, P_2 = 2p, V_2 = ?$
Using $\frac{P_1 V_1}{T_1} = \frac{P_2 V_2}{T_2}$
$$\frac{100P}{T} = \frac{2P \times V_2}{T/2}$$
$100 = 4V_2$
$V_2 = 25cm^3$ **Ans A**

47. 6 mins is equivalent to 2 half - lives.
D/4, count rate at zero time = 400X2x2
= 1600 **Ans. C**

48. B
49. B
50. B

NNAMDI AZIKIWE UNIVERSITY, AWKA
POST-UME SCREENING EXERCISE 2007/2008
FOR
ENGINEERING AND ENVIRONMENTAL SCIENCES
SHADE [FIRMLY] ONLY ONE ANSWER USING HB
PENCIL ONLY
TIME ALLOWED: 1 HOUR DATE: AUGUST 22, 2007
READ THIS PASSAGE CAREFULLY ANSWER THE
QUESTIONS THAT FOLLOW IT.

PASSAGE A
All over the world till lately and in most of the world till today, mankind has been following the course of nature: that is to say it has been breeding up to the maximum. To let nature take her extravagant course in the reproduction of the human race may have made sense in an age in which we are if we were also letting her take her course in decimating mankind by the casualties of war, pestilence and famine. Being human, we have at least revolted against the senseless waste. We have started to impose on nature's heartlessness, a humane new order of our own. But once man has begun to interfere with nature, he cannot afford to stop halfway. We cannot, with impunity, cut down the death-rate and at the same time allow the birth-rate to go on taking nature's course. We must consciously try to establish an equilibrium, or sooner or later, famine will stalk aboard again.

1. The author observes
A. War, pestilence and famine were caused by the extravagance of nature
B. nature "was heartless and senseless.
C. There was a time when uncontrolled birth made sense D. There was a time when mankind did not interfere with normal reproduction. E. Nature was heartless in its reproductive process.

2. Which of these statements does not express the option of the author A. mankind has started to interfere with the work of nature B. many people had died in the past through want and disease. C. mankind should not have the maximum number of children possible D. mankind should take care of its children E. man's present relationship with nature in matters of birth and death is a happy one

3. Humane, as used in the passage means
A. sensible B. Wise C. human
D. benevolent E. thorough

4. 'We must consciously try to establish an equilibrium'. implies that mankind must A. Realistically find an equation B. Man should control the birth rate
C. Mankind will soon perish of starvation
D. Pestilence causes more death than war
E. Man should change nature's course gradually

5. The main idea of this passage is that
A. Nature is heartless B. Man shall control the birth-rate C. Man will soon perish of starvation
D. Pestilence causes more death than war

4

Each of the following words is offered in its correct form and in some , the incorrect forms. Indicate the correct spelling.

6. (A)fullscap   B. foolscap   C. fulscap   D. folscap

7. A. perseverance   B. perservarance   C. Perseverence   D. persevereance

8. A. sorvinir   B. souvenier   C. Souvenir   D. souvenire.

9. A. momento   B. memento   C. mormento   D. mementor

10. A. mischievious   B. mischivous   C. mischievous   D. mischieveous

11. A. dormant   B. domant   C. durmant   D. doomant

12. A. bureaucracy   B. beureaucracy   C. burreacracy   C. beureccracy

13. A. aestetic   B. aesthetic   C. aesthethic   D. aesthetic

14. A. accessory   B. acesory   C. accesory   D. assessory.

15. A. abattor   B. abbattoir   C. abattoir   D. abatoir

16. A. balustar   B. ballustar   C. Balluster   D. Baluster

17. A. attrition   B. atrittion   C. atrition   D. attrittion

18. A.. corroboration   B. coroboretion   C. Corroborassion   D. Coroborassion

Select the wrongly spelt words in these questions

19. A. disappointed   B. embarassed   C. Equipped   D. rhythm

20. A. occurrence   B. surprise   C. personel   D. possess

21. A. quiet   B. Believe   C. precede   D. opportunity

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

22. Mr. Agu was most flexible in his instructions   A. Rigid   B. correct   C. stiff   D. Upright

23. The university has offered temporary accommodation to its staff   A popular   B. permanent   C. recognized   D. regular

24. Mary complained that she slept on the coarse floor   A. smooth   B. rough   C. bad   D. harsh

25. Tony was one of the spectators at the concert   A. ushers   B. judges   C. guests   D. performers

26. The Governor declined to give audience to the journalists A. ignored   B. accepted C. forgot D. rejected

27. The debtor's husband is liable for his wife's debts   A. unanswerable   B. Responsible   C. Unquestionable   D. Accountable

28. The lotion recommended by the doctor soothed Chinwe's aching tooth   A. calmed   B. excited   C. worsened.   D. extracted

29. The sun cast its shadow on the wall.   A. reflection   B. rays   C. substance   D. resemblance

30. He was locked up for a week   A. released   B. punished   C. remanded   D. locked out

31. The lady acted courageously when thieves attacked her.   A. shyly   B. fearlessly   C. severe   D. sour

32. To most people last Chistmas was an austere period A. prosperous B. harsh C. severe D. sour

33. The chief was generous in his award of university scholarship A. noble B. honest C. mean D. garrulous

34. Chidi is naturally taciturn A. friendly B. Dumb   C. lively   D. garrulous

35. He is loved for his altruism   A. sincerity   B. benevolence   C. kindess   D. selfishness

Choose the option nearest in meaning to the word [s] or phrase underlined

36. You are free to leave the hall   A. at an advantage   B. opportune   C. at liberty   D. right

37. The armed-robbers will surrender their loot to the customs officials A. give away   B. give out   C. give in   D. give up

38. The discussion became animated when the professor came in   A. specialized   B. lively   C. intellectual   D. unruly

39. Rich citizens are often niggardly in their ways.   A. beggarly   B. sordid   C. miserly   D. pompous

40. The musician's popularity is beginning to decline.   A. change   B. wane   C. slide   D. disappear

41. A temperature of 20°C is the same as: A. 36°F   B. 68°F   C. 11.1°F   D. 25°F

42. Three 5 ohm resistors connected in parallel have a potential difference of 60v applied across the combination. The current in each resistor is   A. 4A   B. 35A   C. 12A   D. 24A.

43. An object 1cm placed on the axis 15cm from a converging lens forms an image 30cm from the lens. The size of the image is :   A. 0.5cm   B. 2.0cm   C. 1.5cm   D. 2.5cm

44. When the vapour of a substance is in equilibrium

with its own liquid, it is said to be   A. Gaseous   B. liquefied   C. saturated   D. diffused

45. Which of the following statements is correct? The reading of pressure of a mercury barometer is independent of: A. the atmospheric pressure B. the cross sectional area of the tube C. the density of mercury D. the temperature of mercury

46. The motion of the moving skin of a talking drum can rightly be described as : A. rotational B. oscillatory C. transitory D. random

47. A pressure cooker saves both time and fuel in cooking because inside the cooker, the A. Pressure is constant B. heat is completely trapped C. temperature is evenly distributed D. Boiling point of water is increased

48. The name given to the characteristic behaviour of substances which set with their length perpendicular to a strong magnetic field instead of in line with it is : A. magnet B. magnetization C. paramagnetism D. ferromagnetism

49. According to ohms law, the ratio V/R is constant for : A. an electrolyte B. a diode   C. an electrode D. a conductor

50. Which of the following is not an effect that can be produced by an electric current A. heat   B. light C. motion   D. none of the above

51. An example of a scalar quantity is :   A. velocity B. weight   C. electric charge D. acceleration due to gravity

53. A liquid in glass thermometer should quickly register temperature changes. This is achieved by choosing a   liquid that:
A. is opaque   B. has a high density
C. has a high thermal conductivity
D. has a regular expansion

54. The tire pressure of a car was found to be 150cm Hg in the morning of a temperature 27° C. Hard driving in the afternoon raised the temperature of the tire to 57° C. The tire pressure in the afternoon had
A. increased by 22.5cm Hg   B. increased by the 15.0cm Hg C. decrease by 15.0cm Hg   D. decrease 22.5cm Hg

55. The force responsible for the moon to remain in its orbit around the earth against the gravitational pull of the earth is : A. centrifugal B. rotational C. centripetal. D. translational

56. A hydrometer is an instrument for measuring the A . density of water in a vessel   B. relative density of a liquid by the method of allocation C. relative density of a liquid by finding the apparent

loss in weight   D. relative humidity of the air.

57. The point beyond which a stretched spring does not return to its original length is called
A. breaking point   B. elastic limit
C. release point   D. spring constant

58. The unit of quantity of electricity is called
A. the ampere   B. the volt   C. The coulomb
D. the ammeter

59. What is the apparent colour of a red shirt when viewed in pure green light ?   A. red   B. green C. black   D. blue

60. A. device that converts sound energy into electrical energy is: A. the horn of a motor car
B. a loud speaker   C. a micro phone
D. the telephone earpiece

61. Which of the following can be used to illustrate the Brownian motion ?   A. suspension of sculpture in the water viewed under a microscope
B. smoke in a glass container illuminated by a strong light from the side   C. a dusty room swept and viewed through a beam of sunlight
D. boiled distilled water viewed under sunlight.

62. The following can be uses of sulphur except.
A. prevention of the growth of fungi
B. Vulcanization of rubber   C. manufacture of dyes
D. coating of steel to prevent rusting

63. An acid present in protein is   A. lactic acid B. amino acid C. palmitic acid   D. stearic acid .

64. The noble gas argon is used for : A. electric welding B. welding brass   C. under water welding
D. steel welding

65. Phosphorus is stored under water to prevent if from
A. smelling   B. dehydrating
C. catching fire   D. becoming inert

66. Which of the following compounds is aromatic.
A. benzene   B. hexane   C. cyclobutane
D. cyclopentane

67. Which of the following does not affect the rate of chemical reaction?   A. concentration of the reactant   B. addition or presence of a catalyst
C. size of the reacting particles
D. the enthalpy change for the reaction

68. A salt which loses mass when exposed to air is
A. hygroscopic   B. delinquent   C. efflorescent
D. effervescent

69. Which of the following statements is not correct?
A. carbon exhibits allotropy B. sulphur exhibits allotropy C. chlorine exhibits allotropy
D. Nitrogen is a gas

6

7

70. How many carbon atoms are there in the benzene ring?
A. 4   B. 5   C. 6   D. 8

71. Why is potassium fluoride added to the electrolyte in the extraction of sodium from fused, sodium chloride?   A. pure sodium chloride does not conduct electricity   B. potassium chloride prevents the sodium produced from attacking the electrodes   C. potassium fluoride acts as a catalyst   D. potassium fluoride reduces the temperature at which chloride fuses.

72. Which of the following is used   extensively in manufacturing photographic chemical   A. Aluminum chloride   B. zinc chloride   C. silver chloride   D. Chloride

73. Catalytic hydrogenation of oil results in the production of
A. soap   B. detergent   C. butter   D. margarine

74. A sample of orange juice is suspected to be contaminated with a yellow dye. Which of the following methods can used to detect the dye?
A. decantation   B. chromatography
C. distillation   D. evaporation

75. When a solid melts and consequently boils, there is
A. A gradual increase in the average kinetic energy of the particles   B. A sudden decrease in the kinetic energy of the particles   C. A rapid change in the nature of bonding of the components   D. A change in the size of the fundamental particles

76. Which of the following compounds will undergo addition reaction (A) Ethyne (B) Butane C. Pentane D. Ethanol

77. A catalyst which increases the rate of a chemical reaction does so by (A) increasing the reaction pathway (B)Increasing the surface area of the reactant (C) decreasing the temperature at which the reaction occurs.   (D) Decreasing the activation energy of the reaction.

78. Which of the following correctly explains entropy?
(A) The natural tendency for a system to achieve a greater disorder   (B) A measure of the rate of attaining equilibrium in a reversible reaction
(C) The cause of spontaneity of a reaction
(D) A measure of the enthalpy of a reaction.

79. The gas that is liberated when iron is heated with concentrated tetraoxosulpate (vi)acids is
A. HS   B. SO   C. O_2 D. SO_2

80. Which of the following pollutants is biodegradable?
(A) Sewage (B) plastic (C) lead compound
(D) hydrogen sulphide.

81. $X^2 - 4 = 0$, then x =   A. 4   B. 2   C. -2
D. none of the above.

82. After getting rise of 15 %, a man's monthly salary is N345. How much per month did he earn before the increase? (A)N330 (b)N360 (C)N300
(D) N396. 75

83. A solid cylinder of radius 3cm has a total surface area of $3611cm^2$, find its height (A) 2cm   (B)3cm
(C) 4cm   (D) 6cm.

84. The median of the set of numbers 4, 9, 4, 13,7,14,10,17,is (A). 13 (B) 7 (C) 10 (D).19/2.

85. 7 pupils of average age 12 years, leaves a class of 25 pupils of average age 14 years. If 16 new pupils of average age 11 years join the class, what is the average age of pupils now in the class? (A) 13years (B) 10 months   (C) 11years
(D) 12years 71/2 months.

86. Divide the L.C.M. Of 48,64 and 80 by their H.C.F.
(A) 20   (B) 30   (C) 48   (D)60.

87. Of the nine hundred students admitted in an university in 2000 the following are the distribution by state of origin: Anamra- 185   Imo-135   Kaduna-90   Kwara-110 Ondo-155   Oyo-225. In a pie chart drawn to represent this distribution,the angle subtended at the centre by Anambra State is (A) 50° (B) 65° (C) 74° (D) 88°

88. Find the least length of a rod which can be cut into exactly equal strips each 40 cm by 48cm length
(A) 120cm (B)240cm   (C) 360 cm   (D)480cm.

89. A rectangular lawn has an area of 1815 square yards. If its length is 50 metres, find its width in metres given that 1 metre equals 1.1yard.
(A) 39.93m   (B) 35.00m   (C)33.00m
(D) 30.00m.

90. A car moves from P to Q at an average speed of 90km/h and immediately returns from Q to P through the same route at an average speed of 60km/h. Find the average speed for the entire journeys.   (A) 55km/h   (B) 60km/h
(C) 67.50km/h   (D)75km/h.

91. In a school 220 students offer biology or mathematics or both,125 offer biology and 110 mathematics. How many students offer biology but not mathematics? (A) 95   (B) 80
(C) 125   (D) 110.

92. The time taken to do piece of work is inversely proportional to the number of men employed. If it takes 45 men to do a piece of work in 5 days, how long will it take 25men? (A)15days   (B)12days
(C) 5days (D) 9days.

93. Simplify 52.4-5.7-3.45-1.75   (A) 41.1   (B)41.5
(C) 24.1 (D) 24.2

94. A trader bought goats for N4,000.00 each. He sold them for N180,000 at a loss of 25%. How many goats did he buy? (A) 60 (B) 50 (C) 45 (D) 36

95. A 5.0g of salt was weighted by Amaka as 5.1g. What is the percentage error
(A) 20% (B) 2% (C) 1% (D) 0.2%

96. Find correct to one decimal place 0.24633/0.306
(A) 0.8 (B) 1.8 (C) 8.0 (D) 8.1

97. A basket contains green, black and blue balls in the ratio of 5:2:1. If there are 10 blue balls, find the corresponding net ratio when 10 green and 10 black balls are removed from the basket (A) 1:1:1 (B) 4:2:1 (C) 4:1:1 (D) 5:1:1

98. Factorize completely $(x-1)^2 - (2x+2)^2$.
(A) $(X+1)(9X+2)(X-2)$ (B) $(X-1)^2 (X-2)^3$
(C) $(X+1)^2 (X+2)^2$ (D) $(X+1)^2 (X-2)$.

99. A student calculated the mean of five numbers as 45.3. While rechecking his working, he discovered that his total was short by 0.05. What is the correct mean of the five numbers?
(A) 24 (B) 1.2 (C) 49.4 (D) 65.8

100. A man bought a second hand car for N250,000.00 and spent N70,000.00 refurbishing it. He then sold the car for N1,000,000.00. What is the percentage gain? (A) 20% (B) 25% (C) 32% (D) 60%.

SOLUTION 2007/2008
POST-UME SCREENING PAST QUESTION FOR ENGINEERING AND ENVIRONMENTAL SCIENCES.

1. B - nature was heartless and senseless
2. D - mankind should take care of its children
3. D - benevolent
4. E - man should change nature's course gradually
5. A - nature is heartless
6. B - foolscap
7. A - perseverance
8. C - souvenir
9. B - memento
10. C - mischievous
11. A - dormant
12. B - bureaucracy
13. B - aesthetic
14. A - accessory
15. C - abattoir
16. D - baluster
17. A - attrition
18. A - corroboration
19. A - disappointed
20. A - occurrence
21. B - believe
22. A - rigid
23. B - permanent
24. A - smooth
25. D - performers
26. B - accepted
27. A - unanswerable
28. C - worsened
29. B - rays
30. A - released
31. A - shyly
32. A - prosperous
33. C - mean
34. D - garrulous
35. D - selfishness
36. C - at liberty
37. C - give in
38. B - lively
39. C - miserly
40. B - wane
41. $C = \frac{5}{9}(F-32)$
Then, $F = \frac{9^\circ C}{5} + 32$
Therefore, $F = \frac{9 \times 20}{5} + 32$
$F = 36 + 32$
$= 68^\circ F$ **Ans. B**

42. For parallel combination,
The potential drop across each resistor is the same = 60V
Hence current in each resistor, $I = V/R$
$= 60/5$
$= 12A$ **Ans. C**

43. $\frac{\text{Image dist}}{\text{Object dist.}} = \frac{\text{image size}}{\text{Object size}}$
$\frac{30}{15} = \frac{x}{1}$
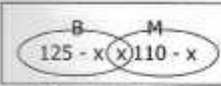$X = 2cm$. **Ans. B**

44. C
45. D
46. B

[8]

47. In pressure cooker, cooking is done at a temperature higher than $100°C$. **Ans. D**

48. Diamagnetic materials align with strong magnetic while paramagnetic materials set with their length perpendicular. **Ans. C**

49. D
50. D
51. electric charge has no direction **Ans. C**
53. C

54. $\dfrac{P_1}{T_1} = \dfrac{P_2}{T_2}$

$T_1 = 27 + 273 = 300K$

$T_2 = 57 + 273 = 330$

$P_2 = \dfrac{P_1 T_2}{T_1} = \dfrac{150 \times 330}{300}$

$= 165$ cm Hg

$P_2 - P_1 = 165 - 150 = 15$cm Hg **Ans. B**

55. Moon maintains its orbit because centripetal force balances the gravitational pull of the earth. **Ans. C**

56. Relative density - hydrometer, Relative humidity - hygrometer, gas pressure - manometer atmospheric pressure-barometer **Ans. C**

57. B
58. C
59. The colour an object reflects is what we see. A red shirt under green light absorbs the green and reflects none (appears black) **Ans. C**

60. C
61. C
62. D
63. B
64. A
65. C
66. A
67. D
68. On exposure to air, a deliquescent salt absorbs water and dissolves in it. Hygroscopic salt absorbs water but do not dissolve while efflorescent salt loses its water of crystallization. **Ans. C**

69. C
70. C
71. D
72. C
73. D
74. B
75. A
76. Saturated hydrocarbons (alkanes) undergo substitution reaction while unsaturated ones like alkenes & alkynes undergo addition reactions. **Ans. A**

77. D
78. A
79. D
80. A substance is biodegradable if it can be broken down to inorganic substances by the action of micro-organisms **Ans. A**

81. $X^2 - 4 = 0$

$X^2 = 4$

Then, $x = +2$ or -2 **Ans. D**

82. Let the man's salary b/4 the increase be X, then

115% of $X = 345$

I.e $115x = 345$

$X = \dfrac{345}{1015} = N300$ **Ans. C**

83. Total surface area $= 2\pi rh + 2\pi r^2$

$= 2\pi r \ (h + r)$

I.e $3611 = 2 \times \dfrac{22}{7} \times 3 \ (h + 3)$

$3611 = 18 . 9 (h + 3)$

$h + 3 = \dfrac{3611}{18.9} = 191$

$h + 3 = 191$

$H = 188$cm **None**

84. Arranging in ascending order,

4, 4, 7, 9, 10, 13, 14, 17

Median $= \dfrac{9 + 10}{2} = \dfrac{19}{2}$ **Ans. D**

85. Total age of the class $= 25 \times 4 = 350$

Total age of the 7 pupils $= 7 \times 12 = 84$

Total age of 16 new pupils $= 16 \times 11 = 176$

Total age of pupils remaining $= 350 - 84 + 176$

$= 442$yrs

Total no of pupils remaining $= 25 - 7 + 16$

$= 34$ pupils

Therefore, average age $= \dfrac{442}{34} = 13$yrs **Ans. A**

86. The H.C.F $= 8 \times 2 = 16$

The L.C.M $= 8 \times 2 \times 3 \times 4 \times 5 = 960$

Therefore, $\dfrac{960}{16} = 60$ **Ans. D**

87. For Anambra, $185/900 \times 360° = 74°$ **Ans C**

88. The L.C.M of 40 & 48 is 240 **Ans. B**

89. $50m = 1.1 \times 50 = 55$yards

Area of rectangle $= L \times W$

I.e $1815 = 55 \times w$

$W = 55$yards

In metres, $\dfrac{33}{1.1} = 30$m **Ans. D**

90. Average speed $= 90 + 60 = 75$km/h **Ans. D**

91.

$125 - x \quad x \quad 110 - x$

$125 - X + X + 110 - X = 220$

$235 - X = 220$

$X = 15$

Those that offer biology $= 125 - x$

I.e $125 - 15 = 110$ **Ans D**

92. Time, $T \propto \dfrac{1}{N}$

Then, $T_1 N_1 = T_2 N_2$

$T2 = \dfrac{T_1 N_1}{N_2} = \dfrac{5 \times 45}{25}$

$= 9$ days **Ans D**

93. $52.4 - 5.7 - 3.45 - 1.75 = 41.5$ **Ans B**

94. Let the total cost price be x

75% of $x = 180,000$

I.e $0.75x = N240,00$

Therefore, no of goats $= \dfrac{240,000}{4,000}$

$= 60$ **Ans. A**

9

95. %Error $= \dfrac{5.1-5}{5} \times 100\%$

$= \dfrac{0.1}{5} \times 100$

$= 2\%$ **Ans. B**

96. $\dfrac{0.24633}{0.306} = 0.805$

$= 0.8$ (to 1 dp) **Ans. A**

97. Sum of ratio $= 5 + 2 + 1 = 8$
If total no of balls $= x$
Then $1/8 \, x = 10$
$X = 80$ balls
No of green balls $= \dfrac{5 \times 80}{8} = 50$

No of black balls $= 20$
After removing 10 green & 10 black balls, the ratio becomes 40:10:10
I.e 4:1:1   **Ans. C**

98. This is difference of two squares
$= [(x+1) + (2x+2)] \; [(x+1) - (2x+2)]$
$= (3x+3)(-x-1)$

99. Let the student's total $= x$

$\dfrac{x}{5} = 45.3$

$x = 226.5$
But the actual total $= 226.5 + 0.05$
Therefore, the correct mean $= \dfrac{226.55}{5}$

$= 45.3$ **None**

100. Total cost $= 250,000 + 70,000$
$= 320,000$
Hence, the % gain is 68%.   **None**

NNAMDI AZIKIWE UNIVERSITY, AWKA
POST-UME SCREENING EXERCISE 2008/2009
FOR
ENGINEERING, ARCHITECTURE, BUILDING, QUANTITY SURVEYING, SURVEYING AND GEOINFORMATICS

Instructions
1. Shade firmly only one answer using HB pencil only
2. Shade your second choice of course in the column provided (column 8)
Time allowed: 1 hour   Date: July 23.2008
From the words lettered A to D, choose the word or group of words that best completes each of the following sentences.

1. Cosmas is a very good friend on _____ I can rely. (A)who (B)whose (C)which (D)whom

2. A hotel is supposed to be a home away from hom but the one we _____ was hell away from hom (A)moved into   (B)checked (C) dropped by   (D)checked into

3. Initially, we were deceived by the beautif surroundings and by the manager's _____ whic was warm and inviting. (A) reception (B)intention   (C)conviction   (D)conception

4. After the usual ____ and signing of forms, we wer allowed into our rooms. (A)feeling   (B)filing (C)fill in   (D) filling

5. I ought _____ the letter by now. (A)to be sent (B)t have being sent (C)to have sent (D) to have to send

6. Chinwe's Fever was so acute that she ____ a Injection (A) had to have   (B)had to had (C) must have   (D)ought to have

7. I started writing at 9am. It is 10am and by 11am, _____ writing for two hours. (A)will be   (B)am (C)will have been   (D)have been

8. The car couldn't keep pace _____ the motorcyc especially in congested areas. (A)along (B)with   (C)down   (D)on

9. Obiora couldn't have said a thing like that ____ (A)could he? (B)did he? (C)can he? (D)would he?

10. I don't know what to do with these children. The are always fighting _____ .(A)themselve (B)myself   (C)one   (D)each another

11. The fishermen threw a stone into the river and this caused a _____ (A)sprinkle   (B)sparkle (C)splash   (D)storm

12. The play was so interesting that the _____ clapped for quite a long time at the end. (A)spectators (B)watchers   (C)congregation   (D)audience

13. The building _____ because of weak structural foundation. (A)tumbled (B)caved (C)collapsed (D)succumbed

14. The magazine was_____ by the government for an offensive publication (A)prescribed (B)proscribed (C)suspended (D)persecuted

15. Many people reacted to the brutal murder of the popular musician with strong _____ (A)indignation (B)demonstration (C)accusation (D)condemnation

16. The governor frowned at the _____ which slowed down the implementation of policy decisions. (A)bureaucracy (B)opposition (C)accusation (D)condemnation

17. The doctor_____ the illness as typhoid fever and not malaria.(A)prescribed (B)discovered (C)announced (D)diagnosed

18. Since the writer did not indicate his name, the editor decided not to publish such_____ Article.
(A) a discourteous (B) an anonymous (C) a scandalous (D) libelous

19. Please let me have_____salt in my soup. (A) few (B) a little (C) a small (D) a few

20. Don't believe all_____ he had told you. (A)what (B)which (C)that (D)there

In each of the following sentences, there is one word underlined and one gap. From the list of words lettered A to D, choose the word or group of words that is most nearly opposite in meaning to the underlined word and that will at the same time, correctly fill the gap in the sentence.

21. Joseph purchased various articles at the big sale near the supermarket and, surprisingly enough, he_____ them all before he reached home that day. (A)destroyed (B)bought (C)lent (D)sold

22. In this argument, Martin was my supporter even though he is often my _____ in other matters. (A)opponent (B)ally (C)opposite (D)proposer

23. People who are normally_____often turn to be dauntless heroes in the face of real danger (A)unsteady (B)colourless (C)cowardly (D)bashful

24. I encouraged my younger brother to take on law as a profession while I _____my sister from doing so (A)financed (B)warned (C)dissuaded (D)persuaded

25. It is quite customary to introduce the guest speaker but_____to insult him (A)illegal (B)impolite (C)unusual (D)useless

26. John was able to kindle the fire, which my father had to_____later. (A) Kill (B) switch (C)extinguish (D)ignite

Choose the word opposite in meaning to the underlined word and which completes the sentence.

27. One of the armed robber was as daring in his words at the stake as the other was___(A)morose (B) secretive (C) rational (D)timid

28. His outspokenness contrasts with the_____ of the father. (A)humour (B)sobriety (C)deafness (D)taciturnity

29. A gully which is a natural phenomenon, could not be mistaken for a tunnel which is_____ (A)supernatural (B) modern (C)artificial (D)imitative

30. It is curious how Chike can be carefree in his ways when his brother is so_____ (A)eccentric (B)meticulous (C)easy-going (D)lovable.

31. Personally, I give in rather easily when it comes to arguments, but Emeka will always_____to his opinions. (A) hold in (B)hold on (C)hold back (D)give out.

32. He intentionally threw the document away and somebody_____burnt them. (A)carelessly (B)willingly (C)accidentally (D)foolishly.

33. The crops the farmer planted were_____by naughty boys (A)sowed (B)weeded (C)destroyed (D)uprooted.

34. The man refused to accept the offer of a job in the rural areas, he preferred one in the_____Area. (A)local (B)urban (C) township (D)municipal.

35. The young engineer is good at terminating other people's projects but has not been capable of _____any of his own. (A)integrating (B)finishing (C)completing (D)initiating.

36. The manager who expected to be given respect was treated with_____.(A)dignity (B)scorn (C)shame (D)disloyalty.

37. Those who had invitation cards were admitted to the party while those who had none were_____.
(A) barred (B)replied (C)expelled (D)restricted.

38. Too many theories will not help us, we need to be_____. (A) bookish (B) hypothetical (C) shrewd (D)practical.

39. Nobody expects him to show_____ for his children but he certainly bestows too much affection on them. (A)love (B)concern (C)devotion (D)hatred

40. The challenger at the boxing tournament was crude and inexperienced in contrast to the champion who

was_____. (A) great   (B) exposed
(C) refined   (D) strong

From the word lettered A to D below in each of the following sentences, choose the word or group of words that is nearest in meaning to the underlined expression as it is used in the sentence.

41.   My choice of a partner would be based on character, not looks. (A) Visibility   (B) feasibility   (C) appearance (D) posture.

42.   Mike is very winsome yet his neighbour finds it difficult to put up with him. (A) stay with (B) live with (C) tolerate   (D) rely on.

43.   The Efik girl has just come out of the fettering room and her waist is adorned with beads. (A) surrounded (B) decorate   (C) besieged   (D) defaced.

44.   There are some drugs that could exacerbate a particular illness. (A) heal   (B) ameliorate (C) worsen   (D) defaced.

45.   In accordance with the practice of his religion, Raman's body was interred the day he died. (A) preserved (B) sanctified (C) cremated (D) buried

46.   What you avoid you try to endure.   (A) cast off (B) put off   (C) dispense with   (D) tolerate.

47.   The decision taken by the panel is irrevocable. (A) irresponsibile   (B) unexpected (C) acceptable (D) irresponsible and unacceptable.

48.   Death is inevitable for man. (A) essential (B) neccessary   (C) unavoidable   (D) imminent.

49.   The superintendent was appalled by the attitude of some of the employees towards their work. (A) annoyed   (B) disappointed   (C) shocked (D) depressed

50.   The lawyer's argument of the case was exhaustive. (A) interesting   (B) exaggerating (C) exhilarating   (D) thorough.

51.   In a school, 220 students offer Biology or Mathematics or both. 125 offer Biology and 110 mathematics. How many offer Biology but not Mathematics? (A) 95   (B) 80   (C) 125   (D) 110.

52.   Simplify: 52.4-5.7-3.45-1.75   (A) 41.4   (B) 41.5 (C) 42.1   (D) 42.2.

53.   A trader bought goats for N4, 000.00 each. He sold them for N180,000.00 at a loss 0f 25%. How many goats did he buy? (A) 60   (B) 50   (C) 45   (D) 36.

54.   A circle with a radius 5cm has its radius increasing at the rate of 0.2cms⁻¹. What will be the corresponding increase in the area? (A) 2π (B) 5π (c) π (d) 4π

55.   A cinema hall contains a certain number of peopl If 22 ½ % are children, 47 ½ % are men and 84 a women, find the number of men in the hall (A) 63   (B) 84   (C) 113   (D) 133.

56.   X varies directly as the product of U and V an inversely as their sum. If x=3 when u=3 and v=? what is the value of x if u=3 and v=3? (A) 3   (B) 4   (C) 6   (D) 9.

57.   The length a person can jump is inversel proportional to his weight. If a 20kg person ca jump 1.50m, find the constant of proportionality (A) 60   (B) 30   (C) 20   (D) 15.

58.   Find the value of x and y respectively if 3x-5y+5= and 4x-7y+8=0. (A) -5,-4 (B) -4,-5 (C) 4,5 (D) 5,4.

59.   A trapezium has two parallel sides of length 5cn and 9cm. If the area is 21cm², find the distanc between the parallel sides. (A) 3cm (B) 4cm (C) 6cm   (D) 7cm.

60.   An aeroplane flies due north from airports P to Q and then flies due East to R. If Q is equidistant from P and R, find the bearing of P from R. (A) 090°   (B) 135°   (C) 225°   (D) 270°

61.   An arc of a circle subtends an angle of 30° on the circumference of a circle of radius 21cm. Find the length of the arc. (π =22/7)   (A) 11cm (B) 22cm   (C) 44cm   (D) 66cm.

62.   By how much is the mean of 30,56,31,55, 43 and 44 less than the median?   (A) 0.75   (B) 0.50 (C) 0.33   (D) 0.17.

63.   The range of 4,3,11,9,6,15,19,23,27,24,21 and 16 is (A) 16   (B) 21   (C) 23   (D) 24.

64.   On a pie chart, there are four sectors of which three angles are 45°,90° and 135°. If the smallest sector represents N28.00, how much is the largest sector? (A) N96.00   (B) N84.00   (C) N48.00,   (D) 42.00.

65.   Find the number of committees of three that can be formed consisting of two men and one woman from four men and three women. (A) 3 (B) 6 (C) 18 (D) 24.

66.   A bag contains 5 black balls and 3 red balls. Two balls are picked at random without replacement. What is the probability that a black and a red balls are picked? (A) 15/28   (B) 13/28   (C) 5/14   (D) 3/14.

67.   If x is the addition of the prime numbers between 1 and 6, and y the HCF of 6,9,15, find the product of x and y. (A) 27   (B) 30   (C) 33   (D) 90.

68.   A 5.0g of salt was weighed by Ikechukwu as 5.1g. What is the percentage error? (A) 20   (B) 2   (C) 1

12

(D) 0.2.

69. Two brothers, John and Tim, own a store. The ratio of John's share to Tim's is 11:9. Later, Tim sells 2/3 of his share to John for N720.00. Find the value of the store. (A)N1.080.00 (B)N2,400.00 (C)N3,000.00 (D)N3,600.00

70. Four interior angles of a pentagon are $90°-X°, 90°+X°, 110°-2X°, 110°+2X°$. find the fifth interior angle. (A)$110°$ (B)$120°$ (C)$130°$ (D)$140°$.

71. The slope of a straight line displacement-time graph indicates the (A)distance traveled (B)uniform velocity (C)uniform acceleration (D)uniform speed.

72. A ball of mass 0.5kg moving at $10ms^{-1}$ collides with another ball of equal mass at rest. If the two balls move off together after the impact, calculate their common velocity. (A)$0.2ms^{-1}$ (B)$0.5ms^{-1}$ (C)$5.0ms^{-1}$ (D)$10ms^{-1}$.

73. A ball is thrown vertically upwards from the ground with an initial velocity of $50cms^{-1}$ what is the total time spent by the ball in the air? ($g=10ms^{-2}$) (A)2.5s (B)5.0s (C)10.0s (D)15.0s.

74. The motion of body is simple harmonic if the (A)acceleration is directed towards a fixed point and proportional to its distance from the point (B)path of motion is a straight line (C)acceleration is proportional to the square of the distance from a fixed point (D)acceleration is always directed towards a fixed point.

75. Which of the following statements about the gaseous state of matter is not correct? The molecules of a substance in gaseous state (A)are in constant state of motion (B)have different speeds (C)have a temperature which is a measure of the average kinetic energy (D)have no intermolecular attractive force.

76. Which of the following cannot be used to measure the temperature of a substance? (A)variation of pressure with temperature (B)expansivity of liquid (C)change in resistance of a conductor (D)change in colour with temperature.

77. The clinical thermometer is characterized by having a (A)wide range of temperature (B)wide bore (C)narrow bore (D) constriction.

78. Which of the following is a reason why a concrete floor is colder to the bare feet than a mat on the same floor during the rainy season? (A)mat is better conductor of heat than the feet (B)mat loses heat to the bare feet at a faster rate than a concrete floor (C) concrete floor is a better conductor of heat

than the mat (D)mat loses heat to the bare feet while the concrete floor extracts heat from them

79. In which of the following is the expansion of solids a disadvantage? (A)the fitting of wheels in rims (B)the balance wheel of a watch (C)fire alarms (D)the thermostat.

80. Which of the following best explains why a person suffers a more severe burn when his skin is exposed to steam than when boiling water is poured onto his skin? (A)steam possesses greater heat energy per unit mass than boiling water (B)steam is at a higher temperature than boiling water (C)steam spreads more easily over a wider area of skin than boiling water (D)steam penetrates more deeply into the skin than boiling water.

81. The temperature at which the water vapour present in the air is just sufficient to saturate it is called the (A)ice point (B)boiling point (C)dew point (D)saturation point.

82. Which of the following instruments may be used to measure relative humidity? (A)Hydrometer (B)Hygrometer (C)manometer (D)Barometer.

83. An object is placed 36cm from a converging lens of focal length 24cm. If a real image, which is 4cm high, is formed, calculate the height of the object? (A)2.0cm (B)4.0cm (C)6.0cm (D)10.0cm.

84. The ability of the eye to focus objects at different distance is called (A)power (B)accomodation (C)long sight (D) normal vision.

85. The unit of inductance is the (A)farad (B)henry (C)ampere (D)coulomb.

86. The component of universal indicator solution can best be separated by (A)chromatography (B) filtration (C) evaporation (D)crystallization.

87. The number of replaceable hydrogen atoms in one molecule of an acid indicates it's (A)basicity (B)acidity (C)alkalinity (D)pH value.

88. A measure of the degree of disorder in a chemical system is known as the (A)enthalpy (B)free energy (C)activation energy (D)entropy.

89. In any chemical reaction, the total mass of the products is always equal to that of the reactants. This is statement of the law of (A)definite proportions (B)conservation of matter (C)multiple proportions (D)constant composition.

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90. Which of the following is not a property of magnesium oxide? (A)high melting point (B)Dissolution in polar solvents (C) presence of ionic bonds (D)low binding energy.

91. Calcium is usually extracted by the electrolysis of it's (A) trioxonitrate (v) (B)tetraoxosulphate(vi) (C)chloride (D)oxide.

92. When naphthalene on heating changes from the solid state directly to the gas state it undergoes (A)evaporation (B)sublimation (C)decomposition (D)ionization.

93. When sodium atom forms the ion Na^+ (A)it gains one electron (B) it gains one proton (C)it achieves a noble gas configuration (D) its atomic number increases.

94. Which of the following properties is characteristic of the halogens? (A)ability to accept electrons readily (B)ability to donate electrons readily (C)ability to form basic oxides (D)formation of coloured compounds.

95. A transition metal would be expected to (A)form oxides with different formulae (B)have strong oxidizing ability (C)have low density (D)have an atomic structure with an incomplete outermost shell.

96. Which of the following properties of atoms generally increase down a group in the periodic table? (A)Electron affinity (B)Electronegativity (C)ionic radius (D)ionization.

97. Which of the following compounds has hydrogen bonds between its molecules? (A)HF (B) Hbr (C)HCl (D)HI

98. What product is formed at the cathode during the electrolysis of concentrated sodium chloride solution using carbon electrodes? (A)chloride (B)Hydrogen (C)Oxygen (D)sodium

99. Glucose reduces fehling's solution on warming to (A) copper (I) oxide (B) copper (II) oxide (C) copper (I) chloride (D)copper (II) hydroxide.

100. Which of the following activities is not a source of air pollution? (A)Domestic fires (B)carbon dating (C)coal powered stations (D)cigarette smoking.

SOLUTION 2008/2009
NAU POST - UME SCREENING PAST QUESTIONS
FOR
ENGINEERING, ARCHITECTURE
COMPILED BY BRAINFOLDER

1. D - whom
2. D - checked into
3. A - reception
4. C - fill in
5. C - to have sent
6. A - had to have
7. The sentence is in the real future, hence "will" is correct for it **Ans. C**
8. B - with
9. A - could he?
10. A - themselves
11. C - splash
12. D - audience
13. C - collapsed
14. B - proscribed
15. D - condemnation
16. A - bureaucracy
17. D - diagnosed
18. B - an anonymous
19. " little" is used for uncountable nouns while "few" is is for countable nouns. **Ans. B**
20. "All" collocates with "that" **Ans. C**
21. D - sold
22. A - opponent
23. C - cowardly
24. C - dissuaded
25. C - unusual
26. C - extinguish
27. D - timid
28. D - taciturnity
29. C - artificial
30. B - meticulous
31. B - hold on
32. C - accidentally
33. D - uprooted
34. B - urban
35. D - initiating
36. B - scorn
37. D - restricted
38. D - practical
39. D - hatred
40. C - refined
41. C - appearance
42. A - stay with
43. B - decorate
44. C - worsen
45. D - buried
46. D - tolerate
47. C - acceptable
48. C - unavoidable
49. C - shocked
50. D - thorough

(51)
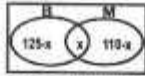
125-x +x +110-x=220
235-x=220
X=235-220=15
Hence, those that offer biology but not maths
=125-15=110   **Ans D.**

(52). 4-5.7-3.45-1.75=41.5   **Ans D.**

(53) Let the total cost price be x
75% Of x= 180,000
i.e 0.75x=180,000
X=N240,000
Hence, no of goats =$\frac{240,000}{4,000}$ = 60 **Ans A**

(54)
dr/dt = 0.2cms⁻¹,
For a circle, Area, A =πr²
Then, dA/dr= 2πr
Using dA/dt= dA/dr x dr/dt
dA/dr=2πr x 0.2
=0.4πr
but r=5cm
dA/dr=0.4π x 5
=2πcm²s⁻¹   **Ans A**

(55) % of women =100-(22¹/₂+47¹/₂)
=100-70 =30%
Let the total no of people be x
Then 30% of x =84
0.3x=84
X=280
D/4 no of men = 47.5/100 x 280
=133
          Ans D.

(56) x α $\frac{uv}{u+v}$
X= $\frac{kuv}{u+v}$
When u =3, v=1, x=3, Then 3 = $\frac{k(3x1)}{3+1}$
3 =$\frac{3k}{4}$
K=4
If u=3, v=3
X=$\frac{4(3x3)}{3+3}$=$\frac{36}{6}$
X=6   **Ans C.**

(57) L α $\frac{1}{w}$
L=$\frac{K}{w}$

1.5 =$\frac{k}{20}$
Then, k=1.5 x 20= 30   **Ans B**

(58) 3x-5y= -5____(1)
4x-7y= -8____(2)
eqn (1)x4: 12x-20y= -20
Eqn (2)x3: 12x-21y= -24
          y = 4
Substituting y=4 in eqn (1)
3x-5(4)=-5
3x-20=-5
3x=15; x=5   **Ans D.**

(59)For a trapezium,
Area= ½ (a+b)h
21=¹/₂ (5+9)h
42= 14h
h=3
          Ans A

60)

45°+180°=225°
          Ans. C

(61) Length of an arc = θ/360 x 2π r
= $\frac{30}{360}$ x 2 x $\frac{22}{7}$ x 21
=11cm   **Ans. A**

(62) mean =$\frac{30+56+31+55+43+44}{6}$
=$\frac{259}{6}$ =43.17
Arranging; 30, 31,43,44,55,56
Median=$\frac{43+44}{2}$ =43.5
Median - mean   = 43.5-43.17
          =0.33   **Ans. C**

(63) Range=largest value - smallest value
=27-3
=24   **Ans. D**

(64) the 4th angle is 360-(45+90+135)
=90°
Hence, the smallest angle = 45°
If the total amount is x,
Then $\frac{45x}{360°}$ =28
x=$\frac{360x28}{45}$ =N 224
D/4, the largest amt =$\frac{135 x 224}{360}$ =N 84 **Ans. B**

15

16

(65) 2 men from 4men: $^4c_2$
1 woman from 3 women: $^3c_1$
D/4, no of committees = $^4c_2 x ^3c_1$
= 6x3
= 18   **Ans. C**

(66) it could be (BR) or (RB)
$P(BR) = \frac{5}{8} x \frac{3}{7} = \frac{15}{56}$
And p(BR) or p(RB) = $\frac{15}{56} + \frac{15}{56} = \frac{30}{56}$
= $\frac{15}{28}$ **Ans. A**

(67) prime no b/w 1 & 6 are 2,3
and; x = 2+3+5 = 10
Also, y = H.C.F. Of 6,9,15 = 3
Hence, xy = 3x10 = <u>30</u>   **Ans. B**

(68) % error = $\frac{5.1-5}{5}$ x100%
= $\frac{0.1}{5}$ x 100%
= 2%   **Ans. B**

(69) Sum of ratio = 11+9 = 20
let the value of the store be X
Tim's share = 9/20x and he sells
2/3 of 9/20x to John for 720
I.e. $\frac{3x}{10}$ = 720
3x = 720
X = N2400   **Ans.B**

(70) sum of int. <s = (n-2)180.
let the fifth angle be p;
P+90-x+90+x+110-2x+110+2x = (5-2) 180
p+400 = 3x180
p+400 = 540
p = <u>140</u>   **Ans. D**

(71) B

(72) $m_1u_1 + m_2u_2 = (m_1+m_2)v$
(0.5x10)+0 = (0.5+0.5)v
5 = 1v
I.e. V = 5mls   **Ans. C**

(73) At max height, V=0
V = u-gt
0 = u-gt
T = $\frac{u}{g}$ = 0.5/10 = 0.05sec
i.e.time to reach the max. Height.
Since it takes the same time to reach the
ground, total time 2x0.05 = <u>0.1sec</u> **NONE**

(74) A
(75) D
(76) D
(77) D
(78) C
(79) A
(80) A
(81) C
(82) B
(83) $\frac{1}{v} + \frac{1}{u} = \frac{1}{f}$
$\frac{1}{v} + \frac{1}{36} = \frac{1}{24}$
$\frac{1}{v} = \frac{1}{24} - \frac{1}{36} = \frac{3-2}{72}$
$\frac{1}{v} = \frac{1}{72}$; v = 72cm

Also, $\frac{Image\ dist}{Object\ dist}$ = $\frac{Image\ height}{object\ height}$
$\frac{72}{36} = \frac{4}{x}$
$2 = \frac{4}{x}$
2x = 4; x = 2cm   **Ans. A**

(84) B
(85) B
(86) A
(87) A
(88) D
(89) B
(90) D
(91) C
(92) B
(93) C
(94) A
(95) A
(96) C
(97) A
(98) B
(99) Glucose reduces copper (II) complexes copper (I) oxide **Ans. A**
(100) B

NNAMDI AZIKIWE UNIVERSITY, AWKA
POST-UME SCREENING EXERCISE, 2009/2010
FOR
ENGINEERING, ARCHITECTURE, BUILDING,
QUANTITY SURVEYING, SURVEYING AND
GEOINFORMATICS

INSTRUCTIONS
1. Shade FIRMLY only one answer using HB pencil only.
2. Shade your second choice of course in the column provided (column 8)

TIME ALLOWED: 1 HOUR   Date: July 6, 2009

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

1. The old car_____several times this year. (A)was repaired (B) has been repaired (C) had been repaired (D) was being repaired.

2. You should show some consideration_____ the feelings of others. (A) with (B)to (C) about (D)for.

3. If he had entered the room, I_____him. (A) saw (B)had seen (C) would have seen (D) will see.

4. The horse is a winner,_____ (A) you can take that from me (B) you can say I say s~ (C) you can take my word for it (D)you may or may not believe it.

5. If we went to any European country,___ Britain, we would need a substantial amount of money to pay our way. (A)like (B) let us say (C) as an example (D)if we say.

6. _____,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.

7. Emeka_____as a mechanic when he was young, but now he is a driver. (A) had been working (B)used to work (C) would have worked (D) had worked.

8. The students_____ so much noise while the lecture was going on that the lecturer had to walk out of the class. (A)made (B) had been making (C) were making (D) had made.

9. In the past, his father used to walk but nowadays he_____ to work by bicycle. (A) was going (B) seldom goes (C) goes (D) is going.

10. By the end of the next semester, he_____his University education. (A)would have completed (B) will be completing (C) shall have completed (D)must complete.

11. The telephone in the nineteenth century and is now used in most countries in the world. (A) had been invented (B) was invented (C) has been invented (D) would have been invented.

12. The way to stop some frivolous publication is to the press. (A)gag (B)shackle (C) bind (D) handcuff.

13. The exercise must be done_____possible. (A)as quick as (B)as quicker as (C) as quickly as (D) as most quickly as.

14. For their part in the unsuccessful_____the mutineers were court-martialed. (A) coopes (B)coupes (C)coupe (D) coup.

15. The chairman ruled the impertinent speaker_____. (A) according to order (B)out of order (C)correctly (D)contrary to order.

16. Your approach to the problem is different_____ours. (A) as (B) like (C) from (D) to.

17. They_____our donation with thanks. (A)recieved (B) recived (C)received (D)receipt.

18. You surely want_____in your tea, don't you? (A) all milk (B) a milk (C) some milk (D) any milk.

19. Although he was invited to the party____he was not welcome. (A) but (B) yet (C) so (D) because.

20. I told him_____he had no chance. (A) quite by frankly (B) quite frankly (C) quite in frankness (D) quite being frank.

21. The passenger waited patiently whilst they transferred his_____from the taxi to the bus. (A) properties (B)baggages (C)luggage (D)luggages.

Choose the word or phrase from A to D which has the nearest meaning to the underlined word or words in each of the following sentences.

22. He used his saving to bring up his nephew. (A) accompany (B) feed (C)lead (D) support.

23. Mary is jealous of her sister's success.(A)suspicious (B) bitter (C)mindful (D)envious.

24. Our school prefect is too officious and all of us hate him because of his behaviour. (A) efficient (B)efficacious (C) over-zealous (D)showy.

25. The president of our club has sent his

regrets. He may be unable to attend the next meeting. (A) confusion (B)explanations (C) sadness (D)apologies.

26. Whenever I travel abroad, I always bring, on my return, photographs, postcards and other small items as souvenirs. (A) mementoes (B) momentoes (C) memorials (D)remembrance.

27. Because our representative in the National House of Assembly is an immature and biased politician, he takes jaundiced view of our social and economic problems. (A)hazy (B) unclear (C)prejudiced (D)bright.

28. His wife for ten years refused point-blank to leave her matrimonial home even when he brought another woman into the house. (A)boldly (B)pointedly (C)sharply (D)bluntly.

29. In some parts of Nigeria, people are ostracized simply because of their ancestry. (A)abandoned (B)shut off from society (C) refused education (D)hated and rendered unhappy.

30. One of the surest ways to ensure good health is to have a wholesome and adequate diet. (A) palatable (B)mixed (C)hygienic (D)health-giving.

Choose the word which is opposite in meaning to the underlined word in each of the following sentences.

31. The doctor was very gentle with his patients in the examining room. (A) harsh (B)rude (C)rough (D)unkind.

32. John is a disco addict. He takes his studio rather lightly. (A)humorously (B)tediously (C)carefully (D)seriously.

33. My brother is very lazy. He will not take his studies seriously. His future looks quite bleak. (A)cloudy (B)cheerless (C)bright (D)huge.

34. While our most recently elected legislators are living a life of affluence and ostentation, the vast majority of those who elected them into office are unhappy. (A)influence (B)pleasure (C)poverty (D)consequence.

35. It is generally believed that misers are not loved by many. (A)spenders (B)spendthrifts (C)savers (D)hoarders.

36. My brother's primary school foundation was solid and this affected his secondary education. (A) sound (B)shaky (C) weak (D)sordid.

37. Politicians and holders of political appointments are generally assumed to be cunning. (A)kind (B)generous

(C) straightforward (D)sly.

38. This card entitles you to attend the fil show. (A)disqualifies (B)satisfie (C)discourages (D)proclaims

39. The increase in transport fares deterre our club from planning an excursion this y e a (A)deferred (B)irritated (C)restricted (D)encouraged.

40. The severity of the harmattan helped m to complete my writing assignment i record time because I had no choice but to loc myself indoors. (A)warmth (B)mildnes (C)leniency (D)gentility.

41. Disgruntled people are indifferent to an plans to rid the society of evil. (A)differen from (B)opposed to (C)in agreement with (D)interested in.

42. The deafening noise of the two jet planes w h i c h flew across our compound yesterday made people fear that an assault on the country might be imminent. (A)impending (B)ahead (C)remote (D)eminent.

43. Many untrustworthy students give evasive answers to question which they fully understand. (A)direct (B)simple (C)truthful (D)clever.

44. The Governor upheld the decision of the cabinet. (A)held up (B)abolished (C) reversed (D)maintained.

45. He is loved for his altruism. (A) benevolence (B)sincerity (C)selfishness (D)kindness.

46. James is naturally taciturn. (A)friendly (B)cheerful (C)lively (D)garrulous.

47. To most people, last christmas was an austere period. (A)prosperous (B)harsh (C)severe (D)sour.

48. The chief was generous in his award of university scholarships. (A) noble (B)considerate (C)liberal (D)mean.

49. The explosive growth of world population has not been caused by a sudden increase in human fertility. (A)fantastic (B)gradual (C)combustible (D)dangerous.

50. The Super Eagles lost the match because their goalkeeper was in a haze most of the time. (A)indisposed (B)confused (C)alert (D)sleeping.

51. The height at which the atmosphere ceases to exist is about 80km. If the atmospheric pressure at the ground is 760mmHg, the pressure at a height of 20km above the ground level

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is (A)380mmHg (B)570mmHg (C)190mmHg (D)480mmHg.

52. A stone of mass 1 kg is dropped from a height of 10m above the ground and it falls under gravity. Its kinetic energy 5m above the ground is then equal to (A)its kinetic energy on the ground (B)twice its initial potential energy (C)its initial potential energy (D)half its initial potential energy.

53. If a spherical metal bob of radius 3cm is fully immersed in a cylinder containing water and the water level rises by 1cm, what is the radius of the cylinder? (A)12cm (B)1cm (C)3cm (D)6cm.

54. The resultant of two forces acting on an object is maximum if the angle between them is (A)$45°$ (B)$0°$ (C)$90°$ (D)$180°$.

55. The efficiency of a machine is always less than 100% because (A)the work output is always greater than the work input (B)the load lifted is always greater than the effort applied (C)the effort applied is always greater than the load lifted (D)the velocity ratio is always greater than the mechanical advantage.

56. The thermometric substance of an absolute thermometer is (A)alcohol (B)mercury (C)helium (D)platinum.

57. Which of the following metals will provide the greatest shield against ionizing radiation? (A)Iron (B)Lead (C)Manganese (D)Aluminium.

58. Energy losses through eddy currents are reduced by using (A) low resistance wires (B) insulated soft iron wires (C)few turns of wire (D)high resistance wires.

59. Which of the following instruments is suitable for making the most accurate measurement of the internal diameter of a test tube? (A)meter rule(B) a pair of calipers(C) a micrometer screw gauge (D) a tape rule.

60. An object weighs 10N in air and 7N in water. What is the weight when immersed in a liquid of relative density 1.5? (A)4.5N (B)4.67N (C)5.5N (D)8.5N.

61. The absolute zero temperature is defined as the temperature at which (A)thermal motion ceases (B) the temperature of the gas is $273°C$ (C) ice melts (D)the volume of a real gas is maximum.

62. Which of the following is not a suitable method for reducing loss of heat from a piece of hot iron? (A)wrapping it in cotton wool (B)painting it black (C)placing it in a vacuum (D) keeping it in a closed wooden box.

63. A concave mirror of radius of curvature 20cm has a pin placed at 15cm from its pole. What will be the magnification of the image formed? (A)4.00 (B)2.00 (C)1.33 (D)1.50.

64. Birds can perch safely on overhead electric power cables without being electrocuted because (A)birds can withstand high p.d of the electric cables. (B)any accumulated charge on the birds is quickly dissipated. (C)the feet of the birds are well insulated (D)there is no p.d between the birds and the cables.

65. Viscosity of a liquid does not depend on the (A) nature of the liquid (B)area of the surfaces in contact (C)normal reaction between the liquid layers (D)temperature of the liquid.

66. An acid present in proteins is (A)lactic acid (B)amino acid (C) palmitic acid (D)stearic acid.

67. The following are uses of sulphur except (A)manufacture of tetraoxosulphate (vi) acid (B)prevention of the growth of fungi (C) vulcanization of rubber (D) coating of steel to prevent rusting.

68. A salt which loses mass when exposed to air is (A)hygroscopic (B) deliquescent (C)efflorescent (D)effervescent.

69. Detergents are better than soaps for laundry because (A)detergents are synthetic while soaps are not (B) detergents are more soluble in water than soaps (C)scum is precipitated when soaps are used with hard water but not with detergents (D) soaps form soluble salts with ions causing hardness of water while detergents do not.

70. Which of the following compounds is aromatic? (A)Benzene (B) Cyclobutane (C)Hexane (D)Ethane.

71. Which of the following substances is used as an anaesthetic? (A)CHI_3 (B) $CHCl_3$ (C)$CHBr_3$ (D)C_2H_5OH.

72. Which of the following is a neutral oxide? (A)Nitrogen(IV)oxide (B) Carbon(IV) oxide (C)Sulphur(VI) oxide (D)Nitrogen oxide.

73. Which of the following statements is not correct? (A) Carbon exhibits allotropy (B)Sulphur exhibits allotropy (C)Chlorine exhibits allotropy (D) Argon is a noble gas.

74. The following are heavy chemicals except (A) tetraoxosulphate (vi) acid (B) caustic soda (C) dyes (D) sodium trioxocarbonate (iv).

75. Which of the following is not true of the rusting of iron? (A)Rusting is a reduction process (B)Rusting of iron takes place in

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the presence of oxygen and moisture (C)The rust formed is reddish brown (D)The major constituent of rust is hydrated iron (iii) oxide.

76. The most suitable method to use when separating an insoluble solid from a liquid is (A)evaporation (B)filtration (C) magnetization (D)distillation.

77. When an element can exist in two or more forms in the same physical state, the element is said to exhibit (A)isotopy(B) isomerism (C)allotropy (D)hygroscopy

78. Which of the following carbohydrates does not usually occur in the crystalline form? (A)Fructose (B)Glucose (C)Cellulose (D)Maltose.

79. Copper can best be purified by (A)roasting the impure copper in a blast furnace (B) heating the oxide with coke (C)electrolyzing a copper (ii) salt solution using the impure opper as the anode (D)washing the impure copper with sodium hydroxide solution.

80. A sample of orange juice is suspected to h a v e been contaminated with a yellow dye. Which of the following methods can be used to detect the dye? (A) Decantation (B)Chromatograhpy (C)Distillation (D) Evaporation.

81. If Okoye scored 75 in biology instead of 57, his average mark in four subjects would have been 60. What was his total mark? (A) 2 8 2 (B)240 (C)222 (D)210.

82. Divide the L.C.M. of 48, 64 and 80 by their H.C.F. (A)20 (B)30 (C)48 (D)60.

83. Find the smallest number by which 252 can be multiplied to obtain a perfect square. (A)2 (B)3 (C)5 (D)7.

84. Ekop deposited ₦150.00 in the bank. At the end of 5 years the simple interest on t h e principal was N55.00. At what rate per a n n u m was the interest paid? (A)11% (B)7$\frac{1}{3}$% (C)5% (D)3$\frac{1}{2}$%.

85. A number of pencils were shared out among Chike, Tunde and Ifeoma in the ratio of 2:3:5, respectively. If Chike got 5, how many pencils were shared out? (A)15 (B)25 (C)30 (D)50.

86. In 1984, Ike was 24years old and his father was 45 years old. In what year was Ike exactly half his father's age? (A)1982 (B)1981 (C)1979 (D)1978.

87. A regular polygon of n sides has 160° as the size of each interior angle. Find n.

(A)18 (B)16 (C)14 (D)12

88. An open rectangular box external measures 4m x 3m x 4m. Find the tot cost of painting the box externally if it cos N2.00 to paint one square metr (A)₦96.00 (B)₦112.00 (C)₦136.0 (D)₦160.00.

89. Of the nine hundred (900) studen admitted in a unity school in 2005, th following was the distribution by state origin: Anambra(185), IMO (135), Kaduna (9(Kwara (110), Ondo (155), Oyo (225). In pie chart drawn to represent th distribution, the angle subtended at the centre Anambra State is (A)50° (B)65° (C)74° (D)88°.

90. Find the median of the number 89,141,130,161,120,131,131,100,108 and 11 (A)131 (B)125 (C)123 (D)120.

91. Find the least length of a rod which can cut into exactly equal strips, each of eith 40cm or 48cm in length. (A)120c (B)240cm (C)360cm (D)480cm.

92. A rectangular lawn has an area of 18 square yards. If its length is 50 metres, fi its width in meters, given that 1 met equals 1.1 yards. (A)39.93 (B)35.((C)33.00 (D)30.00.

93. If the length of a square is increased by 20% While its width is decreased by 20% to fo a rectangle, what is the ratio of the area the rectangle to the area of the squar (A)6:5 (B)25:24 (C)5:6 (D)24:25.

94. Peter's weekly wages are ₦20.00 for the - f i r s t weeks and ₦36.00 for the next 24 wee Find his average weekly wage for the remaining weeks of the year, if his average weekly wage the whole year is ₦30.00.(A)₦37.00 (B)₦35. (C)₦30.00 (D)₦25.00.

95. By selling 20 oranges for N1.35 a trad makes a profit of 8%. What is h percentage gain or loss if he sells the san 20 oranges for N1.10. (A)8% (B)10% (C) 12 (D)15%.

96. Four boys and ten girls can cut a field in fi hours. If the boys work at (5/4)th the rate which the girls work, how many boys will needed to cut the field in 3 hours? (A)1((B)60 (C)25 (D)20.

97. A farmer planted 5000 grains of maize a harvested 5,000 cobs, each bearing 5(grains. What is the ratio of the number of g r a i n sowed to the number harvested? (A)1:5((B)1:5000 (C) 1:23,000 (D) 1:250,000.

98. If the height of two circular cylinders are in the ratio of 2:3 and their base radii are in the ratio of 9:8, what is the ratio of their volumes? (A) 27:32 (B)27:23 (C)23:32 (D)21:27.

99. The mean of ten positive numbers is 16. When another number is added, the mean becomes 18. Find the eleventh number. (A)3 (B)16 (C)18 (D)38.

100. Convert 3.1415926 to five decimal places. (A)3.14160 (B)3.14159 (C)0.31415 (D)3.14200.

ANSWERS TO NAU POST UME (2009/2010) BY BRAIN FOLDER

1. B - has been repaired
2. D - for
3. C - would have seen him
4. C - you can take my word for it
5. A - like
6. D - from his point of view
7. Since he doesn't work as a mechanic again, "used to work" is more appropriate here. **Ans. B**
8. A - made
9. C - goes
10. A - would have completed
11. B - was invented
12. B - shackle
13. A - as quick as
14. D - coup
15. D - contrary to order
16. C - from
17. C - received
18. C - some milk
19. "Although" collocates with "yet" **Ans. B**
20. B - quite frankly
21. C - luggage
22. D - support
23. D - envious
24. C - over-zealous
25. D - apologies
26. A - mementoes
27. C - prejudiced
28. D - bluntly
29. B - shut off from society
30. D - health-giving. Note: "hygienic" is used if something is bacteria free.
31. A - harsh
32. D - seriously
33. C - bright
34. C - poverty
25. B - spendthrifts
36. C - shaky
37. C - straight forward
38. A - disqualifies
39. D - encouraged
40. B - mildness
41. C - in agreement with
42. B - ahead
43. A - direct
44. C - reversed
45. C - selfishness
46. D - garrulous
47. A - prosperous
48. D - mean
49. B - gradual
50. B - confused

(51) 80km exerts 760mmHg
20km ----------?

$\dfrac{760 \times 20}{80}$ = 190mmHg **Ans C**

(52) Since 5m is half of the total height, the kinetic and potential energies are equal at this point and each is equal to half the initial potential energy. **Ans. D**

(53) equating the volume of the bob to vol. Increase in the cylinder, $\frac{1}{3}\pi r_s^3 = \pi r_c^2 h$

$r_c^2 = \dfrac{4r_s^3}{3h}$ but r_s =3cm and h=1cm

$r_c^2 = \dfrac{4 \times 3^3}{3 \times 1}$

$r_c^2 = 36$

$r_c = 6cm$ **Ans. D**

(54) Resultant of two forces is maximum if they act in the same direction and for such, $\theta = 0^0$ **Ans. B**

(55) using $\varepsilon = \dfrac{M.A.}{V.R} \times 100\%$

The ratio, M.A./V.R can only be less than one if V.R is greater than M.A.   **Ans. D**

(56) B   (57) B

(58) **Ans. B** Note: Energy losses in transformer can be due to eddy currents, hysteresis, heat loss or flux leakage.

(59) B

(60) Using R.D = $\dfrac{\text{upthrust in liq}}{\text{upthrust in } H_2O}$

$1.5 = \dfrac{10-W_{liq}}{10-7}$

$1.5 = \dfrac{10-W_{liq}}{3}$

$4.5 = 10-W_{liq}$

$W_{liq} = 10-4.5$ =5.5N   **Ans.C**

(61) Absolute zero temperature is the temperature at which the volume of a gas is theoretically zero. It's value is -273°C or 0 K

(62) B

(63) r=20cm   F = $\frac{r}{2}$ =10cm

Also, u=15cm

Using $\frac{1}{u} + \frac{1}{v} = \frac{1}{F}$

$\frac{1}{15} + \frac{1}{v} = \frac{1}{10}$

$\therefore \frac{1}{v} = \frac{1}{10} - \frac{1}{15} = \dfrac{3-2}{30}$

$\frac{1}{v} = \frac{1}{30}$, V=30

Hence, magnification, $m = \frac{v}{u} = \frac{30}{15}$

=2 **Ans. B**

(64) D

(65) Friction depends on normal reaction whi viscosity does not. Also, friction does not dep on area of contact but viscosity do. **Ans. C**

(66) B (67) D (68) C (69) C (70) A(71) B(7: D(73) C(74) C (75) A (76) B (77) C (78) C (79) C (80) B

(81) (x+75)/4 =60

X+75 =240

X= 240-75=165

...His total mark = 165+57

=222 **Ans. C**

(82)

8	48	64	80	
2	6	8	10	the H.C.F =8x2=16
3	3	4	5	L.C.M. =8x2x3x4x5 =960
4	1	4	5	Hence, $\frac{960}{16}$=60
5	1	1	5	
	1	1	1	**Ans.D**

(83) **Ans.D**-A perfect square is a number wh square root is a whole no e.g. 1,4,9,16,e.t.c.

(84) I = $\dfrac{PRT}{100}$

Then, R= $\dfrac{100I}{PT}$

P=150, I = 55,T=5

R= $\dfrac{100 \times 55}{150 \times 5}$ = $\dfrac{22}{3}$

R=7$\frac{1}{3}$%   **Ans.B**

(85) the ratio Is 2:3:5; sum of ratio =2+3+5=10

Let the nuber of pencils be x Chike got 5 pencil means, $\dfrac{22}{10}$ of x =5

I.e. $\dfrac{X}{5} = 5$;   x=25   **Ans .B**

(86) let Ike's age in that year be x and his father's 2x.

24-x =45-2x.
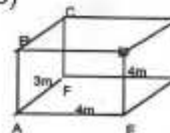
X=21 i.e. Chike was 21years old in that year which is 1981   **Ans. B**

(87) using n= $\dfrac{360}{Ext<}$

N= $\dfrac{360}{20}$ =18sides   **Ans. A**

(88)

An open rectangular box 5 faces.

Hence, Total surface area

= lb+2lh+2bh

= 2(4x4)+2(3x4) + 4x3

$=32+24+12$

$=68m^2$

But $1m^2$ costs N2

$68m^2$ would cost 68x2 =N136   Ans. C

(89) For Anambra, $\frac{185 \times 360^0}{600}$ $=74^0$ Ans C

(90)   in ascending order, we have
89,100,108,199, (120, 130)131,131,141,161,
Median $=\frac{120+130}{2}$ $=125$ Ans.B.

(91) The L.C.M. Of 40 & 48 =240
    Ans. B

(92)   50m =1.1x50=55yards
Area of rectangle = L x w
Then, 1815=55 x w
W=33yards
In meter; $\frac{33}{1.1}$ =30m   Ans.D

93 for the square, area, $A_s = L^2$
    for rectangle, area, $A_r = L \times W$
Where $L = \frac{120L}{100}$ and $W = \frac{80L}{100}$
Hence, $A_r = \frac{6L}{5} \times \frac{4L}{5} = \frac{24L^2}{25}$
D/4, $A_r = \frac{24}{25} L^2 / L^2 = \frac{24}{25}$
A_s Ans D

(94)   let his average weekly wage for the 8 weeks be x.
$\frac{20 \times 20 + 36 \times 24 + 8x}{52} = 30$
$400+864+8x = 1560$
$8x = 296 x = 37$ Ans.A

(95)   let the cost price be X=1.25
If the frader now sells at ₦1.10, he loses ₦0.15
D/4,   % loss $= \frac{0.15}{1.25} \times 100\%$
$=12\%$ Ans. C

(96)   each boy works at the rate 5/4 of each girl;
5/4 x4boys, =5
I.e. 4 boys work as much as 5 girls this means that 10girls would work as much as 8 boys.
D/4,   in terms of boys, there are 12boys,
12boys did the work in 5hrs then how many would do it in 3hrs
I.e. $\frac{12 \times 5}{3}$ = 20boys   Ans. D

(97)   no of grains sowed =5000
No of grains harvested = 5000x500

NNAMDI AZIKIWE UNIVERSITY, AWKA
POST-UTME SCREENING EXERCISE, 2010/2011
FOR
ENGINEERING, ARCHITECTURE, BUILDING,
QUANTITY SURVEYING, SURVEYING AND
GEOINFORMATICS
INSTRUCTIONS

1.   shade FIRMLY only one answer using HB pencil only
2.   shade your second choice of course in the column provided (column8)
     Time Allowed:1 hour

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

1.   If I went to watch the football match, I_____early.(A)shall return (B) am returning (c) would return   (D)Had returned

2.   He went up quickly and returned_____.(A)fastest (B)very fast   (C)fastly   (D)as fast.

3.   His suggestion is completely _____ the point and cannot be accepted. (A) to (B) about (c) besides   (D) beside

4.   In order to carry out the post-mortem examination, the dead body was _____.(A) extracted (B) exhumed   (C)fumigated   (D) dispelled

5.   The green snake which lives in the green grass is using a perfect_____.(A) shelter (B) under cover (C) camouflage   (D) subterfuge

6.   Tennyson and Browning lived about the same time and are therefore_____poets.(A) contemporary (B)contrary   (C) similar   (D) contemporaneous

7.   If you travel by air you will be given allowance to cover_____ (A) a luggage   (B) luggage (C) luggages   (D) a baggage

8.   Last week, the_____at the theatre was the largest I had ever seen. (A)assembly (B) crowd (C) fans   (D) audience

9.   The train rattled along_____full speed. (A) in   (B)at   (C)with   (D) on

10.   His horrible high -pitched laugh _____on my nerves. (A) jabs (B) jams   (C) jars   (D) jeers

11.   As he was still owing me one thousand Naira, I was careful not to_____him any more money. (A) loan (B) lend   (C) borrow   (D) credit

12.   Before the operation, the dentist found that the patient's teeth_____.(A) have long decayed (B) have long been decayed (C) had long decayed (D)Had been decayed.

13.   The employer,   not the salesman and his representative,_____responsible for the loss

of revenue. (A)are   (B) have been   (C) is (D) are being

14.   When the beggar was tired, he _____down by the roadside. (A) lied (B) laid   (C) lay   (D) layed

15.   He did not like _____leaving the class early. (A) us   (B) we   (C) our   (D) ourselves

16.   In presenting the case, the vice-chancellor warned that the Senate should not cite it as a _____. (A) precedence (B) presedence   (C) president (D) precedent

17.   We got to the viewing centre after the football Match _____.(A) has started   (B) had started (C) was starting (D) have started.

18.   In Nigeria, the _____of river blindness is about 25 per cent. (A) incident   (B) incidence (C)accident   (D) accidence

19.   We should take extra precaution _____the kidnappers come back. (A) may be (B) should in case   (C) in case   (D) perhaps

20.   What a relief that the strike _____when it did. (A) would end (B) was ending (C) ended (D) has ended

21.   He played the piano _____an hour or two. (A) around   (B) in about (C) during (D) for

22.   He sent the children out to play _____he Might be alone. (A) because (B) since (C) so that (D) while

23.   It is time we _____. (A) should be going (B) ought to go (C) go (D) went

24.   Do you know if the new teacher _____ yet. (A) is arrived (B) will be arriving   (C) has arrived (D) had arrived

25.   Oji is not far from here, it is only an_____. (A)hour of driving   (B) hour by driving (C) hour drive   (D) hour's drive

26.   The new leader has good intentions but he is unable to _____.(A) carry them with him (B) carry them on (C)carry them out (D) carry them all

27.   We travelled all night and arrived _____ the Jibowu motor park at six o'clock in the morning. (A)at (B) by   (C) on   (D) in

28.   During the swearing in ceremony for a second term, the Governor _____ the activities of his government for the past four years. (A) reiterated (B) reviewed (C) restated (D) recited

29.   The giant hydro-electric project is among the ___ of colonial rule in northern Nigeria.(A) inheritan (B) evidence   (C) legacies   (D)remnants

30.   The Vice-Chancellor will be travelling to China. his absence, the Deputy Vice-Chancellor (Administration) will _____ the University. (A) take over (B) overlook (B) care for (C) look after

31.   The prices of cars have become _____ (A)Painful (B) unbearable   (C) harsh   (D) exorbitant

32.   I had _____ trust in the boy before he woeful disappointed me. (A) essential   (B) flagrant (C) absolute   (D) effective

33.   We need to ____ our resources in these hard time (A) squander   (B) economize   (C) minimize (D) withhold

34.   Paul's   soothing remarks were made _____John's anger. (A) rekindle (B) accommodate   (C) mollify   (D) petrify

35.   The poor boy was _____when he stepped live wire. (A) blazed   (B) electrified   (C) burnt (D) electrocuted

36.   The politician ran to another to seek _____. (A) refuge (B) safeguard (C) safety (D) privacy

37.   The governor ordered that the work done by a contractor should be properly _____so as to kno correct amount to pay. (A) correct   (B) account (C)investigated (D) probed

38.   The university awarded _____ doctorate degre to four distinguished members of the communi (A) honourable   (B) ceremonial   (c) honorary (D) honourary

39.   The students threatened to embark on a_____ lecture if their demand were not met. (A)suspension   (B)boycot   (C)rejection (D) boycott

40.   The late politician had an _____ambition to rule th country. (A) insipid   (B)infantile   (C) inordinate (D) obtuse

41.   The slope of a straight line displacement tim graph indicates the   (A) distance travele (B)uniform velocity   (C) uniform speed (D) uniform acceleration

42.   A man will exert the greatest pressure on a   benc when he (A) lies flat on his back (B) lies flat on hi belly   (C) stands on both feet   (D) stands on on foot only

43.   A ball of mass 0.5kg moving at 10m/s collides wit another ball of equal mass at rest. If the two ball move   off together after the impact, calculate the

common velocity. (A) 0.2ms⁻¹ (B) 0.5ms⁻¹ (C)   5.0ms (D) 2.0ms⁻³

44. A ball is thrown vertically upwards from the ground with an initial velocity of 50cms.⁻¹ What is the total time spent by the ball in the air? (g=10ms⁻²).
(A) 2.5s   (B) 5.0s   (C) 10.0s   (D) 15s

45. Which of the following cannot be used to measure the temperature of a substance? (A) variation of pressure with temperature (B) expansitivity of a liquid (C)change in colour with temperature (D) thermoelectric effect

46. The clinical thermometer is characterized by having a (A)wide range of temperature   (B)wide bore (C)narrow bore   (D) constriction.

47. Which of the following is a reason why a concrete floor feels colder to the bare feet than a mat on the same floor during the rainy season? (A)Mat is a better conductor of heat than the feet (B)Mat loses heat to the bare feet at a faster rate than   concrete floor (C)Mat is a better conductor of heat than the floor (D)Concrete floor is a better conductor of heat than the mat.

48. In which of the following is the expansion of solid a disadvantage?   (A)the fitting of wheels in rims (B) fire arms   (C)the balance wheel of a watch (D)the thermostat.

49. The temperature at which the water vapour present in the air is just sufficient to saturate it is called the (A)ice point (B)boiling point (C)saturation point (D)dew point.

50. Which of the following instruments may be used to measure relative humidity? (A)Hydrometer (B)Barometer (C)Hygrometer   (D)Manometer.

51. An object is placed 36cm from a converging lens of focal length 24cm. If a real image which is 4cm high is formed, calculate the height of the object (A)2.0cm   (B)4.0cm (C)6.0cm (D) 8.0cm.

52. The ability of the eye to focus objects at different distances is called (A)power (B)accommodation (C)normal vision   (D) long sight.

53. The change of the direction of a wave-front because of a change in the velocity of the wave in another medium is called (A)refraction (B)diffraction (C)reflection (D)dispersion

54. A sounding tuning fork is brought near the end of a pipe containing an air column and the loudness of the sound increases. The effect is due to (A)an echo (B)resonance (C)reverberation (D)interference.

55. The unit of inductance is the (A)farad (B)hertz (C)henry   (D)coulomb.

56. Which of the following is not correct about isotope

of an element? They have (A)the same neutron number   (B)the same proton number (C)the same number of electrons (D)different physical properties.

57. The motion of the prongs of sounding tuning forks is (A)random (B)rotational (C)vibratory (D)vibratory and rotational.

58. A thermometer has its stem marked in millimeter instead of degree Celsius. The lower fixed point is 30mm and the upper fixed point is 180mm. Calculate the temperature in degrees Celsius when the thermometer reads 45mm. (A)67.5°c (B)30.0°c (C)15.0°c (D)10.0°c.

59. Which of the following surfaces will radiate heat energy best? (A) Red (B) White (C) black (D) blue

60. Which of the following statements is not correct? (A)Evaporation takes place only at the surface of a liquid.(B) Boiling takes place throughout the volume of a liquid (C)Evaporation takes place at all temperatures (D)The boiling point of a liquid is not affected by impurities.

61. An acid present in proteins is (A) lactic acid (B)amino acid (C)propanoic acid (D)palmatic acid

62. The following are uses of sulfur except (A) manufacture of tetraoxosulphate (vi) acid (B) prevention of the growth of fungi (C)coating of steel to prevent rusting   (D) manufacture of dyes.

63. Which of the following compounds is aromatic? (A)Benzene (B)Cyclobutane (C)Hexane (D) Ethene.

64. Which of the following statements is not correct? (A)Carbon exhibit allotropy (B)sulphur exhibits allotropy   (C)Chlorine exhibits allotropy (D)Argon is a noble gas.

65. Which of the following correctly explains why iodine crystals change directly into the gaseous state when heated?   (A) iodine crystals sublime (B)iodine molecules are held together by weak forces   (C)iodine molecules are covalent (D)iodine atoms are held together by strong forces.

66. A salt which loses mass when exposed to air is (A)hygroscopic (B)efflorescent (C)effervescent (D)deliquescent.

67. Which of the following is a neutral oxide? (A)Nitrogen (iv) oxide   (B) Carbon (iv) oxide (C) sulphur (vi) oxide   (D) Nitrogen oxide.

68. Detergents are better than soaps for laundry because   (A)detergents are synthetic while soaps are not   (B) detergents are more soluble in water than soaps (C)scum is precipitated when soaps are used with hard water but not with detergents (D)soaps form soluble salts with ions causing hardness of water while detergents do not.

69. During the electrolysis of dilute tetraoxosulphate (vi) acid solution, 0.05 mole of electrons were passed. What volume of gas was produced at the anode? (Gaseous molar volume= 22.4dm³ at s.t.p.) (A)0.224dm³ (B)0.280dm³ (C)2.24dm³ (D)2.80dm³.

70. The Solvay process is used in the manufacture of (A) sodium (vi) oxide (B)sodium trioxocarbonate (iv) C)sodium oxocarbonate (iv) (D)Sodium trioxochloride (iv).

71. Aluminum is above iron in the electrochemical series, yet iron corrodes easily on exposure to air while aluminum does not. This is because aluminum (A)has a lower density than iron (B)is a better conductor than iron (C) forms a thin layer of inert oxide in moist air (D) does not corrode spontaneously.

72. A catalyst which increases the rate of a chemical reaction does so by (A) increasing the reaction pathway (B)increasing the surface area of the reactants (C)decreasing the activation energy of the reaction (D)decreasing the temperature at which the reaction occurs.

73. A sample of orange juice is suspected to have been contaminated with a yellow dye. Which of the following methods can be used to detect the dye? (A)Decantation (B)Distillation (C)Chromatography (D)Filtration.

74. Which of the following compounds has hydrogen bonds between its molecules? (A)HBr (B)HF (C)HCl (D)HI.

75. Which of the following properties of atoms generally increases down a group in the periodic table(A) Electron affinity (B)Electronegativity (C)Ionic radius (D)Ionization energy.

76. When sodium atom forms the ion Na^+, (A) it gains one electron (B)it gains one proton (C)it achieves a noble gas configuration (D)its atomic number increases.

77. A transition metal would be expected to (A)form oxide with formulae (B)have strong oxidizing ability (C)have low density (D)have an atomic structure with an incomplete outermost shell.

78. What product is formed at the cathode during the electrolysis of concentrated sodium chloride solution using carbon electrodes? (A)Chloride (B)Hydrogen (C)Oxygen (D)Sodium.

79. Which of the following substances is a suitable solvent for perfumes? (A)Benzene (B)Ethanol (C)Water (D)Turpentine.

80. Which of these metals will not liberate hydrogen from dilute HCl? (A) Copper (B)Iron (C)Magnesium (D)Zinc.

81. A sales girl gave a balance of ₦1.15 to a customer instead of ₦1.25. Calculate her percentage error. (A)10% (B)0.10% (C)8.0% (D)0.8%.

82. What value of K makes the given expression perfect square $m^2 - 8m + K$ (A)2 (B)4 (C)8 (D)16.

83. Factorize $5y^2 + 2ay - 3a^2$ (A) (5y-a) (y+3a) (B) (5y+a)(y-3a) (C)(5y²+a) (2y-3a) (D) (5Y-3a) (y+a).

84. Find the quadratic equation whose roots are x=– or x=7 (A)x²+2x-7=0 (B)x²-5x-14=0 (C)x²-2x+7=0 (D)x²+5x+14=0.

85. A student measured the length of a room and obtained the measurement of 3.99m. If the percentage error of his measurement was 5%, what is the length of the room? (A)3.78m (B)4.18m (C)4.20m (D)4.78m.

86. A rope of length 18m is used to form a sector of a circle of radius 3.5m on a school playing field. What is the size of the angle of the sector, correct to the nearest degree? (A)40° (B)180° (C)33° (D)270°.

87. If 3 log a+ 5 log a - 6 log a = log 64, what is a? (A)4 (B)6 (C)8 (D)16.

88. The angle of elevation of X from Y is 30°. If XY =40m, how high is X above the level of Y? (A)10m (B)20m (C)40m (D)50m.

89. Instead of recording the number 1.23cm of the radius of a tube, a student recorded 1.32cm. Find the percentage error correct to one decimal place (A)6.8% (B)7.3% (C)14.4% (D)15.4%.

90. An arc of a circle radius 7cm is 14cm long. What angle does the arc subtend at the centre of the circle? (A)25.7° (B)44° (C)114.55° (D)98°.

91. If 5 times a certain integer is subtracted From twice the square of the integer, the result is 63. Find the integer. (A)21 (B)9 (C)7 (D)4.

92. While doing his physics practical, Okoli recorded a reading as 1.12cm instead of 1.21cm. Calculate the percentage error. (A)1.17% (B)6.38% (C)7.44% (D)9.00%.

93. In a class of 80 students, every student had to study Economics or Geography, or both Economics and Geography. If 65 students studied Economics and 50 studied Geography, how many studied both subjects (A)15 (B)30 (C)35 (D)45.

94. Solve the equation: $7y^2 = 3y$. (A) y=3 or 7 (B)y=0 or (C)y=0 or 3/7 (D) y=0 or 9.

95. Calculate the surface area of a sphere of radius 7cm (A)86cm² (B)154cm² (C)616cm² (D)1434cm².

96. Find the total surface area of a cylindrical container closed at both end, and with a radius of 7cm and height of 5cm. (A)35cm² (B)154cm² (C)220cm² (D)528cm².

97. Find the volume of the container in the question above (A)35cm³ (B)154³ (C)528cm³ (D)770cm³.

98. From the top of a building 10cm high, the angle of depression of a stone lying on the horizontal ground is 69°. Calculate correct to 1 decimal place, the distance of the stone from the foot of the building (A)3.6m (B)3.8m (C)6.0m (D)9.3m.

99. The bearing of a point X from a point Y is 074°. What is the bearing of Y from X? (A)106° (B)148° (C)254° (D)286°.

100. The population of a village is 5846. Express this number to the three significant figures. (A)5850 (B)5846 (C)5840 (D)585.

SOLUTION 2010/2011
NAU POST - UME SCREENING PAST QUESTIONS
FOR
ENGINEERING, ARCHITECTURE, BUILDING, QUANTITY SURVEYING, SURVEYING AND GEOINFORMATICS.
COMPILED BY BRAINFOLDER

(1) C - would return
(2) B - very fast
(3) D - beside
(4) B - exhumed
(5) C - camouflage
(6) A - contemporary
(7) B - luggage
(8) D - audience
(9) B - at
(10) C - jars
(11) B - lend
(12) C - had long decayed
(13) C - is
(14) C - lay
(15) C - our
(16) D - precedent
(17) B - had started. Note: the football match was already in progress before they arrived
(18) B - incidence
(19) C - in case Note: We either use 'should' or 'in case'. Should in case' is tautological
(20) C - ended
(21) D - for
(22) C - so that
(23) D - went
(24) C - has arrived
(25) D - hour's drive
(26) 'Carry on' is for intentions while 'carry out' is for actions **Ans. B**
(27) A - at
(28) A - reiterated
(29) B - evidence
(30) C - look after
(31) D - exorbitant
(32) C - absolute
(33) B - economize
(34) C - mollify
(35) D - electrocuted
(36) A - refuge
(37) B - accounted
(38) C - honorary
(39) D - boycott
(40) C - inordinate
(41) B
(42) Pressure = F/A. Hence, pressure exerted by a particular force is maximum when the area is very small. **Ans. D**

(43) Using $m_1u_1 + m_2u_2 = (m_1 + m_2)v$
$(0.5 \times 10) + (0.5 \times 0) = (0.5 + 0.5)v$
$5 = V$ i.e $v = \underline{5m/s}$
Ans C.

(44) First, we find the time to reach the max. Height.

At max. Height , find vel, v=o,
u=50cmls= 0.5m/s
Using v=u-gt
T=u/g
=0.5/10= 0.05sec
D/4, total time, 2t=2x0.05
=0.1sec   **NONE**

(45)C
(46)D
(47)D
(48)A
(49)D
(50)C
(51) $\frac{1}{v}+\frac{1}{u}=\frac{1}{f}$
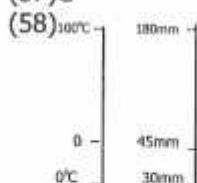
$\frac{1}{V}= \frac{1}{24} - \frac{1}{36} = \frac{3-2}{72}$

$\frac{1}{V}=\frac{1}{72}$; v=72cm

But $\frac{image\ distance}{Object\ distance} = \frac{image\ height}{object\ height}$

$\frac{72}{36}=\frac{4}{x}$

2=4/x

2x=4; x 2cm
        Ans A.
(52)B
(53)A
(54)B
(55)C
(56)A
(57)C
(58) 100°C — 180mm

0 — 45mm

0°C — 30mm

$\frac{\theta -0}{100-0} = \frac{45-30}{180-30}$

$\frac{\theta}{100} = \frac{15}{150}$

150θ= 100x15

θ =10°c   **Ans. D**

(59) C - A black surface absorbs as well as radiates heat better.

(60) D
(61) B
(62) B

(63) A
(64) C
(65) B
(66) B
(67) D
(68) C
(69) During this process, 0_2 is liberated at the anode.

$2O^2$ $0_2 +4e^-$

Hence,
4 moles of electrons--1mole of 0_2 =22.4dm³
0.05 moles--------?
i.e. $\frac{0.0x22.4}{4}$ =0.28dm³   **Ans B.**

(70) B.---- Solvay process is for Na_2co_3; Haber process for NH_3 & HNO_3; Contact process for $S0_3$ & H_2S0_4.

(71) C
(72) C
(73) C
(74) B - The strongest hydrogen bonding is found in HF because fluorine is the most electronegative element. **Ans. B**
(75) C
(76) C
(77) A - Transition metals have variable valenc
(78) B
(79) B
(80) It is only metals which are higher than hydrogen in the electrochemical series tha can liberate hydrogen from dilute acid. **Ans A**

(81) error- 1.25- 1.15 = 0.1

% error= $\frac{error}{Actual\ value}$ x   100%

=$\frac{0.1}{1.25}$ x 100%

=8%   **Ans. C**

(82) To make a quadratic expression a perfect square, we add $(b/2a)^2$ From the eqn, a= b=-8; This means$(-8/2)^2= (-4)^2=16$
        Ans D
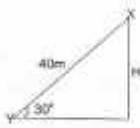
(83) To factorize $5y^2+2ay-3a^2$, multiply the 1st the last terms to get $-15a^2y^2$ whose factors are   -3ay and +5ay Hence
$5y^2+5ay-3ay-3a^2$
=5y(y+a)-3a (y+a)
=(5y-3a)(y+a)   **Ans D**

(84) Using x^2-(sum of roots)x+product=0,
We have x^2- (-2+7)x+ (-2x7)=0
X^2-5x-14=0   **Ans B**

(85) Let the actual measurement be x.
%Error= $\frac{error}{Actual\ value}$ x 100%
5%= $\frac{x-3.99}{x}$
0.05= $\frac{x-3.99}{x}$ 0.05x =x-3.99
X-0.05x=3.99
0.95x=3.99; x= $\frac{3.99}{0.95}$ =4.2m   **Ans C.**

(86) Perimeter of a sector 2r + θ/360 x 2πr
18 = (2x3.5) + θ/360 x 2 x 22/7 x 3.5
18 =7 + 22θ/360
11 = 22θ/360
θ = 360x11/22 = 180° **Ans B.**

(87) 3log a + 5log a - 6log a = log64
(3+5-6) log a= log64
2 log a= log64
Log a^2= log64
D/4, a^2= 64; a= 8   **Ans C.**

(88)
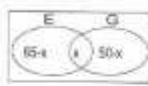
$"/_{40}$=Sin 30°
H= 40 Sin 30° =20m.

Ans B.

(89) error = 1.32-1.23=0.09
% error = 0.09/1.23 x 100%
=7.3%   **Ans B.**

(90) Length of an arc, L= θ/360 x 2πr
D/4, 14=θ/360 x 2 x 22/7 x 7
14 = 44θ/360
=360x14/44
=114.55°   **Ans C.**

(91) Let the integer be x,
$2x^2$-5x=63
$2x^2$-5x-63=0
$2x^2$-14x+9x-63=0
2x(x-7)+9(x-7)=0
(2x+9)(x-7) =0
X=-9/2 or 7
But -9/2 is not an integer. **Ans. C**
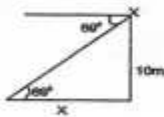
(92) % error = (1.21-1.12)/1.21 x100%
= 7.44%   **Ans. C**

(93)   65-x+x+50-x =80
115-x = 80
X=115-80
=35 **Ans.C**
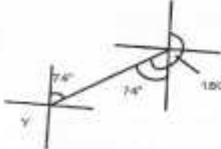
(94) $7y^2$ = 3y
i.e -3y =0
y(7y-3) =0
Y=0 or 3/7   **Ans. C**

(95) For a sphere,
Surface area = $4πr^2$
= 4x22/7x7^2
= 616cm^2 **Ans. C**

(96) Total surface area
=2πrh+2πr^2=2πr(h+r)
=2x22/7x7(5+7)
=44x12
= 528cm^2 **Ans. D**

(97) Volume = πr^2h = 22/7x7^2x5
= 770cm^3 **Ans. D**

(98)   10/x = tan 69°
X = 3.83m **Ans. B**

(99)   180+74=254° **Ans.C**

(100) 5846 to 3s.f.
=5850   **Ans. A**

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