



NATIONAL INFOTECH Sec. SCHOOL

+2 ENTRANCE EXAM-2080

SET - I

TIME: 2. 15 Hrs.

FM : 100

PM : 40

Attempt all the questions

PHYSICS

1. A Cyclist bends itself towards the center while taking turn which one of the following statement is correct?
 - A. To create force of gravity
 - B. To create centrifugal force
 - C. To create acceleration due to gravity
 - D. To create centripetal force
2. Let mass of earth is 'm' kg, radius is 'R' & its acceleration due to gravity is g. An other heavenly body having mass 2m, its radius is 3R and its acceleration due to gravity is g'. Which of the following shows relation between g & g'.
 - A. $g' = \frac{9g}{2}$
 - B. $g' = 4g$
 - C. $g' = 2g$
 - D. $g = \frac{9g'}{2}$
3. Which one of the following statement is not true about acceleration due to gravity?
 - A. Acceleration due to gravity depends upon mass of a planet
 - B. Acceleration due to gravity depends upon mass of a object
 - C. Acceleration due to gravity depends upon radius of a planet
 - D. Acceleration due to gravity varies from place to place
4. According to Pascal's law equalis transmitted in all direction in an enclosed fluid
 - A. Force
 - B. Pressure
 - C. Both force & Pressure
 - D. None
5. Upthrust is created on a body immersed in a liquid because
 - A. Its upper – surface & lower surface is immersed for different depth
 - B. Fluid exerts pressure in all directions
 - C. It displaces liquid
 - D. It has weight
6. An Ordinary water pump can't pull water more than height of 10m from earth surface because
 - A. Water can't remain stand for such height
 - B. Pressure is decreased as its height is increased
 - C. Pressure created by 10m of water column is less than atmospheric pressure
 - D. Pressure created by 10m of water column is equal to atmospheric pressure
7. Heat & Light are released by sun which is produced by
 - A. Nuclear Fusion
 - B. Nuclear Fission
 - C. Exo-thermic Reaction
 - D. Endothermic reaction
8. Which one of the following source of energy is not suitable for Nepal?
 - A. Hydroelectricity
 - B. Wind Energy
 - C. Tidal Energy
 - D. Solar Energy
9. Which one of the following statement is not true about nuclear reaction?
 - A. Mass of reactant is more than that of product
 - B. Huge amount of heat energy is produced
 - C. Lost mass is converted into energy
 - D. Mass of reactant is equal to that of product
10. The amount of heat required to boil 2kg of water at 40°C is
 - A. $5.04 \times 10^6 J$
 - B. $5.04 \times 10^8 J$
 - C. $5.04 \times 10^7 J$
 - D. $5.04 \times 10^{10} J$
11. Water can be used as cooling agent as well as heating agent because it
 - A. is liquid
 - B. is colourless
 - C. is tasteless
 - D. has high specific heat capacity

12. Amount of heat lost by a body doesn't depend upon

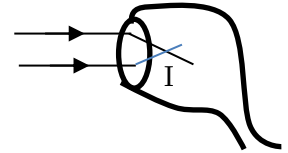
- A. Physical state of substance
- B. Mass of substance
- C. Specific heat capacity of substance
- D. Change in temperature of substance

13. Magnification of a concave lens

- A. is always equal to one
- B. is always more than one
- C. is always less than one
- D. None

14. Defect of vision shown in diagram and its remedy is

- A. Myopia and Convex lens
- B. Hypermetropia and Convex lens
- C. Hypermetropia and Concave lens
- D. Myopia and concave lens



15. An object is kept at 8 cm from a convex lens of power 25D. Nature of image formed by lens is

- A. Virtual, erect & equal in size
- B. Real, Inverted & diminished
- C. Real, Inverted & magnified
- D. Real, Inverted & having magnification one

16. An electrical appliance is rated 100W/220V. But it is connected to an electric circuit having potential difference 240V. What will be its power?

- A. 100W
- B. 110W
- C. 120W
- D. 140W

17. An electric bulb is filled with either N_2/Ar

- A. To prevent oxidation of filament
- B. To neutralize atmospheric pressure
- C. To increase conductivity of filament
- D. To decrease rate of vaporization of filament

18. Which one of the following physical factor remains constant in primary and secondary winding of a transformer?

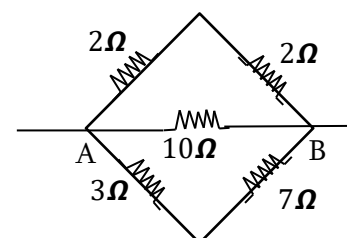
- A. Power
- B. Voltage
- C. Strength of current
- D. Number of windings

19. Strength of electromagnet is not effected by

- A. Number of turns of winding of solenoid
- B. Strength of current passed through solenoid
- C. Nature of materials of electromagnet
- D. Shape of electromagnet

20. What will be value of equivalent resistance of given figure

- A. 1.11Ω
- B. 3.33Ω
- C. 2.22Ω
- D. 4.44Ω



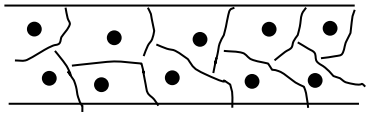
CHEMISTRY

21. Which one of the following elements was named Eka – Aluminum by Mendeleev?
A. Scandium B. Gallium C. Germanium D. Vanadium
22. Electronic configuration of an element is $1s^2, 2s^2 2p^6, 3s^2 3p^5$ it means
A. This element is of 3rd period and of 17th group
B. This element is of 4th period and of 16th group
C. This element is of 3rd period and of 15th group
D. This element is of 2nd period and of 17th group
23. Which one of the following elements is of d-Block but not transition elements
A. Scandium B. Chromium C. Iron D. Zinc
24. Chemical equation is balanced by
A. Law of conservation of energy C. Law of conservation of momentum
B. Law of conservation of mass D. None
25. Which one of the following statement is true about catalyst?
A. It doesn't take part in reaction C. It remains unchanged as a result of reaction
B. It effects nature of product produced D. All of the above
26. A given chemical equation is
- | | | | | | | |
|--------|---|---------------------|---------------|------|---|--------------------|
| Cu | + | $FeSO_4$ | \rightarrow | Fe | + | $CuSO_4$ |
| Copper | | Ferrous
Sulphate | | Iron | | Copper
Sulphate |
- Which one of the following statement is true about given reaction?
- A. It is a single displacement reaction
B. By this reaction iron can be separated from $FeSO_4$
C. No existence of this reaction because copper is less reactive than iron
D. Colour of $FeSO_4$ will be changed
27. Main component of glass is silica mixed with calcium carbonate
A. To make it transparent C. To make it soluble
B. To make it insoluble D. To make it heat resist
28. Number of carbon atoms ranges in soap is about
A. 15-35 B. 1-15 C. 50-75 D. 75-100
29. Ceramics is treated with salt
A. To make it shiny C. To make it smooth
B. To make it strong D. To make it non-porous
30. Electric switch is made up of
A. Ceramics because it is insulator and heat resist
B. Thermoplastic because it is insulator but not heat resist
C. Silk fiber because it is an insulator
D. Thermosetting plastic because it is insulator and heat resist

31. Which one of the following material is used to make artificial tooth
 A. Thermosetting Plastic C. Ceramics
 B. Bone of other animals D. Horn of animals
32. Process of extraction of metal from its ores is called
 A. Metallurgy B. Calcination C. Smelting D. Roasting
33. Bauxite is an ore of
 A. Cu B. Ag C. Fe D. Al
34. Dry ice is formed by
 A. NH_3 B. CO_2 C. H_2 D. O_2
35. Carbon dioxide is collected in gas jar by
 A. Downward displacement of water C. Down-ward displacement of air
 B. Up-ward displacement of water D. Up-ward displacement of air
36. Ethyl alcohol is a type of
 A. Saturated hydrocarbon C. Both Saturated and Unsaturated hydrocarbon
 B. Unsaturated hydrocarbon D. None
37. Which one of the following pair of compound is isomer of each other?
 A. Ethyl alcohol – Methyl alcohol C. Ethyne – Propyne
 B. Formaldehyde – Acetaldehyde D. Glucose – Fructose
38. Which one of the following salt is used in fire extinguisher?
 A. $CaCO_3$ B. $Ca(HCO_3)_2$ C. Na_2CO_3 D. $NaHCO_3$
39. Hydronium ion is produced by in water
 A. Acid B. Base C. Salt D. None
40. pH value of human blood is 7.4
 A. Human blood is acidic in nature C. Human blood is neutral in nature
 B. Human blood is basic in nature D. None

BIOLOGY

41. A couple having black eyes produces offspring with brown eyes, it means
 A. Offspring is homozygous C. Offspring with brown eyes can't be produced
 B. Offspring is heterozygous D. None
42. Which one of the following is not a cause of variation?
 A. Crossing over C. Fertilization
 B. Mutation D. Mitosis
43. Karyotype of Turner's syndrome is
 A. $44 + x0$ B. $44 + xy$ C. $44 + y0$ D. $44 + xxy$
44. CSF in brain is present between
 A. Dura – mater & Pia – mater C. Arachnoid + Pia – mater
 B. Brain & Pia – mater D. Dura – mater & Arachnoid
45. Which one of the following gland is not essential for life?
 A. Pituitary gland C. Adrenal Modulla
 B. Adrenal Cortex D. Islets of Langerhans
46. Which one of the following hormone increases level of sugar in blood?
 A. Insulin C. Adrenaline
 B. Glucagon D. Somatostatin

47. After fertilization, the part of a flower changed into seed is
 A. Ovary B. Ovule C. Androecium D. corolla
48. Which one of the following class performed external fertilization?
 A. Amphibia B. rephilia C. Aves D. mammalia
49. Drone of honey bee is developed from
 A. Fertilized ovum C. Fertilized sperm
 B. Unfertilized Ovum D. Unfertilized sperm
50. According to binomial system of nomenclature, which one of the following written correctly?
 A. Homo sapiens C. Homo Sapiens
 B. Homo sapiens D. Homo sapiens
51. P – arm and q – arm are not found in
 A. Metacentric chromosome C. Acrocentric Chromosome
 B. Sub – metacentric chromosome D. All of the above
52. Nucleolus is formed by
 A. Secondary constriction I as chromosome
 B. Secondary constriction II of chromosome
 C. Primary constriction of chromosome
 D. Satellite of chromosome
53. In human, hepatic portal system is formed between
 A. Heart and Liver C. Heart and Lungs
 B. Liver and Gut D. Liver and Lungs
54. The blood vessels shown in a figure is
 A. Artery C. Capillary
 B. Vein D. None
- 
55. A person get “Gout” because of
 A. Increase in level of sugar C. Increase in level of uric acid
 B. Decrease in level of sugar D. decrease of uric acid
56. Simple goitre is more common in persons living in Himalayan region. Because of lack of in water
 A. Iodine B. Iron C. Magnesium D. Calcium
57. ‘Style’ is a part of
 A. Sepal B. Petal C. Carpel D. Stamen
58. Blood pressure of a human is recorded 130/90 mm Hg. 130 mm Hg denotes
 A. Systolic Blood Pressure C. Total blood pressure
 B. Diastolic blood pressure D. Pressure of heart
59. Down’s Syndrome is caused by
 A. Disorder of sex-chromosome C. Disorder of 20th pair of autosomes
 B. Disorder of 19th pair of autosomes D. Disorder of 21st pair of autosomes
60. Number of carnial nerves and spinal nerves present in human are
 A. 10 pairs and 31 pairs C. 12 pairs and 31 pairs
 B. 10 pairs and 33 pairs D. 12 pairs and 33 pairs

ENGLISH

Read the following text and choose the suitable options mentioned below.

Knowledge of grammar is essential for good speaking and writing, by which one's mind is judged. Studying grammar is hard work: it has to be learned in its entirety, with no parts left out, and it demands a lot of thought and patience. But, once achieved, it can give a lifetime of joy and profit. Its study requires no physical hardship, no special room or expense.

If people spend their free time studying grammar, they can master it in a year. The author learned this in less than a year. Earning six pence a day as a private soldier, he studied in his bed. Not being able to afford candles or oil, he read by the fire in winter (when it was his turn). If he could manage it this way, and without any outside encouragement, any young man, however poor or busy, could do it.

61. What is essential for good speaking and writing according to the author?

- A. Knowledge of grammar
- B. Patience
- C. Physical hardship
- D. Special room or expense

62. How does the author describe the study of grammar?

- A. Easy and not demanding
- B. Hard work with a lot of thought and patience
- C. Physical hardship
- D. No need for effort

63. What can the study of grammar give a person?

- A. A lifetime of joy and profit
- B. Physical hardship
- C. No benefits
- D. Short term benefits

64. What does the study of grammar require?

- A. No physical hardship or special room or expense
- B. Physical hardship, special room and expense
- C. No effort
- D. Lots of money

65. Where did the author study grammar?

- A. In a special room
- B. In his bed
- C. In a library
- D. In a school

66. The word 'epidemic' is antonymous with

- A. pandemic
- B. endemic
- C. academic
- D. none of them

67. _____, please give me a call.

- A. If he came
- B. Should he come
- C. If he come
- D. None of them

68. The passive of 'People know that she was a thief.' is:

- A. It is known that she was a thief.
- B. She is known to have been a thief.
- C. She is known as a thief
- D. Both (a) and (b)

69. She would certainly come to see me if weather_____.

- A. remains fine
- B. remained fine
- C. would be fine
- D. wouldn't be fine

70. The word "an" is

- A. Noun
- B. Adjective
- C. Preposition
- D. Adverb

71. Oh! you are my friend.....?
 A. are you C. isn't he
 B. aren't you D. is he
72. The prime minister as well as his cabinet.....there
 A. were C. are
 B. was D. was were
73. Although they are not rich, they always wear..... clothes.
 A. respective C. respectable
 B. respected D. none
74. He, as well as I, _____ already completed today's assignment.
 A. have C. had been
 B. has D. none
75. The boss said to him, "Please tell me what the old man said today."
 A. The boss requested him to tell him what the old man had said that day.
 B. The boss requested him to tell him what the old man had said today.
 C. The boss requested him to tell him what the old man said that day.
 D. The boss requested him to tell him what the old man said today.
76. I think I _____ have failed the test, but I'm not sure.
 A. ought to C. shall
 B. might D. None of above
77. We have to rush. We _____ miss the last bus home.
 A. needn't C. mustn't
 B. couldn't D. can't
78. The safe ---- we put our jewelry and other valuables were stolen by a group of thieves last night.
 A. in which C. when
 B. whom D. whose
79. If you live in a corrupt society, you cannot easily rise..... the prevailing corruption.
 A. upon C. above
 B. over D. beyond
80. The teacher _____ the student's _____ on the bench as they had come without home-work.
 A. makes, standing C. made, standing
 B. made, stand D. make, stood

MATH

81. If $A = \{x: -4 \leq x < 2\}$ and $B = \{x: -2 \leq x \leq 3\}$ then $A \cap B$ is =?
 A. $\{x: -2 \leq x < 2\}$ C. $\{x: -3 \leq x \leq -2\}$
 B. $\{x: -4 \leq x \leq 3\}$ D. $\{x: -2 \leq x \leq 3\}$
82. Each side of a square is increased by 10% in its length so as to make a big square. What is the percentage of increment in area?
 A. 40% B. 10% C. 100% D. 21%
83. The difference between CI and SI on sum of Rs 5000 for 2 years at 5% p.a. will be Rs.....
 A. 125 B. 12.5 C. 500 D. 250
84. The area of a square field is $48,400 m^2$. If Ram runs around the field in 5 min. , find his speed
 A. 9.6km/hr B. 10.56 km/hr C. 15.60 km/hr D. 12.60 km/hr

85. The factorization of $x^2 - y^2 - 2(4x + 5y) - 9$ is

- A. $(x + y + 1)(x - y - 9)$ C. $(x + y + 1)(x + y + 9)$
 B. $(x + y - 1)(x + y - 9)$ D. $(x - y + 1)(x - y + 9)$

86. What is the minimum and maximum value of probability?

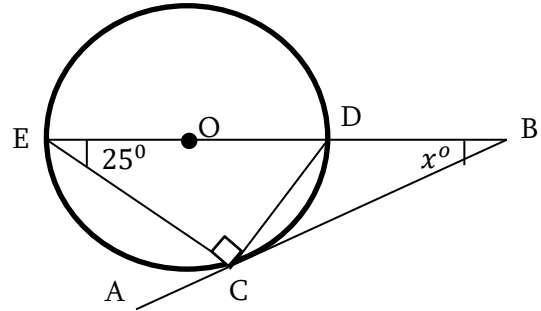
- A. 1 and 2 B. 2 and 1 C. 0 and 1 D. 1 and 0

87. If $a = 2$, $b = 0$, $c = -1$ and $d = 2$, find the value of $a^c + d^b$

- A. $2/3$ B. $-3/2$ C. $-2/3$ D. $3/2$

88. Find the value of x from the given figure

- A. 65° C. 55°
 B. 40° D. 45°

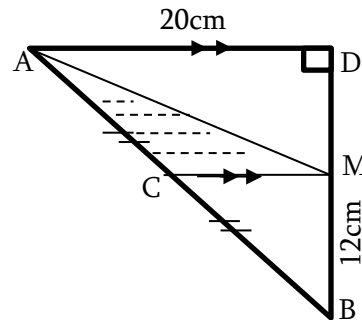


89. If Rs. 315 = US dollar (\$) 3 = pound sterling (£) 2 + Rs. 45, compare the value of US dollar and pound sterling.

- A. 7:9 B. 3:7 C. 9:7 D. 5:7

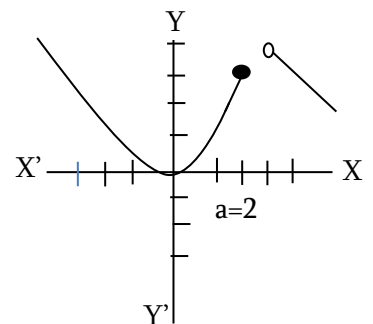
90. From the figure find the area of ΔAMC

- A. 120cm^2 C. 60cm^2
 B. 72cm^2 D. 50cm^2



91. Find the functional value of the function at $x = a$ from the given graph

- A. 0 C. 3
 B. 2 D. 4



92. If $f(x) = 2x + 7$, find $f(x + 2)$ and $f^{-1}(x + 2)$

- A. $7x - 2$ & $\frac{5x+2}{7}$ C. $11x + 2$ & $\frac{5-x}{2}$
 B. $2x + 11$ & $\frac{x-5}{2}$ D. $9x + 3$, $\frac{3x-9}{7}$

93. The number of terms in the series $2 - 2\sqrt{2} + 4 - 4\sqrt{2} + \dots + 16$ is

- A. 5 B. 8 C. 17 D. 7

94. If θ be the angle between two lines and $\tan\theta = 0$ then the two lines are

- A. Parallel C. of zero inclinations
 B. Intersected D. none of above

95. If $\cos\theta = \frac{6}{5\sqrt{2}}$ then $\cos 2\theta = \dots \dots \dots$

- A. $\frac{36}{25}$ B. $\frac{11}{25}$ C. $\frac{9}{40}$ D. $\frac{66}{50}$

96. The angle between $\vec{a} = 6\vec{i} - 8\vec{j}$ with x-axis is

- A. 60° B. 75° C. $\cos^{-1}\left(\frac{1}{100}\right)$ D. $\cos^{-1}\left(\frac{3}{50}\right)$

97. The coefficient of quartile deviation of a grouped data is 0.25. If the upper quartile is 75, find the lower quartile

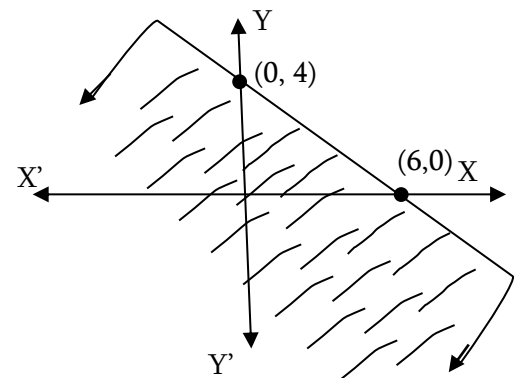
- A. 100 B. 50 C. 45 D. 35

98. $\cos 35^\circ - \cos 25^\circ = \dots \dots ?$

- A. $-\sin 5^\circ$ B. $\cos 95^\circ$ C. Both (a) & (b) D. None

99. The inequality of the shaded region of the graph is

- A. $3x + 2y \leq 12$ C. $2x + 12y \geq 0$
B. $2x + 3y \geq 12$ D. $2x + 3y \leq 12$



100. Condition for two circles touched externally is

- A. $r_2 - r_1 = C_2 - C_1$ C. $r_1 - r_2 = C_1 - C_2$
B. $r_1 + r_2 = C_1 C_2$ D. $r_1 r_2 = C_1 + C_2$

