



# **NATIONAL INFOTECH Sec. SCHOOL**

**+2 ENTRANCE EXAM -2078**

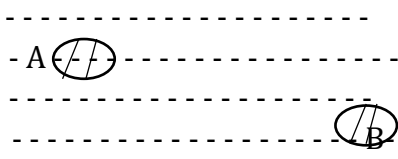
**SET - I**

**TIME : 2:15 Hrs.**

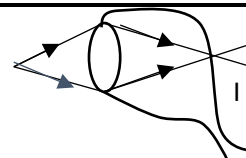
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**Attempt all the question**

## PHYSICS

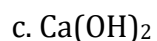
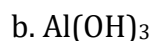
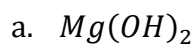
1. Force of gravitation is
  - a. Always attractive in nature
  - b. Always repulsive in nature
  - c. May be attractive or repulsive
  - d. None
2. Acceleration of a free falling body on the earth is
  - a.  $1.67\text{m/s}^2$
  - b.  $9.8\text{ m/s}^2$
  - c.  $25\text{ m/s}^2$
  - d.  $8.9\text{ m/s}^2$
3. The value of acceleration due to gravity on the equator of earth is
  - a.  $10\text{ m/s}^2$
  - b.  $9.8\text{ m/s}^2$
  - c.  $9.78\text{ m/s}^2$
  - d.  $9.83\text{ m/s}^2$
4. Which one of following relation is right?
  - a.  $U = dgv$
  - b.  $U = dga(h_2-h_1)$
  - c.  $U = \text{wt. of displaced liquid}$
  - d. All of above
5. A particular body is immersed in a particular liquid as shown in figure in figure. Where it can get more up – thrust?
  - a. At point A
  - b. At point B
  - c. Equal at both points A and B
  - d. None
6. A body of density  $800\text{ kg/m}^3$  is kept on water. Find out its percentage part remains inside the liquid.
  - a. 40 %
  - b. 60%
  - c. 70 %
  - d. 80%
7. Hydrogen bomb is based on
  - a. Nuclear fusion
  - b. Nuclear fission
  - c. Thermonuclear reaction
  - d. Photochemical reaction
8. Ultimate source of energy on the earth surface is
  - a. Nuclear fusion
  - b. Nuclear fusion
  - c. Chemical reaction
  - d. Hydroelectricity
9. Which one of following is renewable source of energy?
  - a. Forest
  - b. Petrol
  - c. Coal
  - d. All
10. Boiling point of water in Kelvin scale
  - a. 100k
  - b. 273k
  - c. 373k
  - d. 473 k
11. What amount of heat energy is required to boil 4 kg of water at  $10^\circ\text{C}$ ?
  - a. 15120 J
  - b. 151200 J
  - c. 1512 J
  - d. 1512 KJ
12. 1 Calorie of heat energy supplied to 1g of water at  $14.5^\circ\text{C}$  . What will be its final temperature?
  - a.  $15.5^\circ\text{C}$
  - b.  $13.5^\circ\text{C}$
  - c.  $16^\circ\text{C}$
  - d.  $17^\circ\text{C}$
13. Virtual image formed by concave lens
  - a. Always diminished
  - b. Always magnified
  - c. Equal in size
  - d. May be magnified
14. Find out the possible focal length of a lens which can form image at the distance of 20cm of an object placed at 15cm.
  - a. 10cm and 60cm
  - b. 9.5 cm and 70cm
  - c. 8.5cm and 70 cm
  - d. 8.5 cm and 60 cm

15. Name the lens for remedy of defect of vision shown in figure
- Convex lens
  - Concave lens
  - Plano – Convex
  - Plano – Concave
16. A filament lamp is rated 60 w /220 V. Find out its resistance
- 806.6  $\Omega$
  - 706.6  $\Omega$
  - 906.6  $\Omega$
  - 1006.6  $\Omega$
17. Phase wine has
- High resistance and High melting point
  - Low resistance and Low melting point
  - High resistance and Low melting point
  - Low resistance and High melting point
18. The number of turns in secondary coil is 110 times more than primary coil. What will be output voltage if it is supplied by 220V?
- 24200 V
  - 23200 V
  - 25200 V
  - 2020 V
19. A.C. generator is different from D.C. generator in construction.
- Having two slip rings
  - Having three slip rings
  - Having three slip rings
  - Having two slip rings
20. Tungeston can't be used as heating element in heater because
- It has high resistance
  - It has low resistance
  - It can react with oxygen easily
  - It doesn't react with oxygen



## CHEMISTRY

21. Modern Periodic table is given by
- Mendeleev
  - Newland
  - Moseley
  - Dobereiner
22. An element belongs to the 3<sup>rd</sup> Period it means
- It has 3 valence electrons
  - It has 3 orbitals
  - It has 3 orbits
  - It has 3 core electron
23. Electronic configuration of an element is  $1s^2, 2s^2 2p^3$  Its position in modern periodic table is
- P- Block, III A group, 2 – period
  - P – Block, III B group, 2 –Period
  - P – Block, V A group, 3 – Period
  - P – Block, V A group, 2 – Period
24. Non - Metallic properties in a group
- Increases as move from top to bottom
  - Decreases as move from top to bottom
  - First increases then decreases as move from top to bottom
  - First decreases then increases as move from top to bottom
25. Iron reacts with copper sulphate to form ferrons sulphate but copper can't react with ferrous sulphate because
- Copper is more reactive than iron
  - Copper is less reactive than iron
  - Copper is non-metal but iron is metal
  - Copper is metal but iron is non-metal
26. What amount of sodium is required to produce 117g of NaCl?
- 23g
  - 46g
  - 69g
  - 117g
27. P<sup>H</sup> value of lemon juice is
- Equal to 7
  - less than 7
  - more than 7
  - may be equal or more than 7
28. Name the electrolyte used in dry cell
- $NH_4Cl$
  - $NH_4SO_4$
  - $CaCl_2$
  - $CaCO_3$
29. Which one of the following base can be used to neutralize acidity of soil?



30. Isomers have

- a. different molecular formula but similar in structural formula
- b. different molecular formula and different in structural formula
- c. similar molecular formula and similar structural formula
- d. similar in molecular formula but different in structural formula

31. Pentane has .....isomer

a. 1

b. 2

c. 3

d. 4

32. DDT is a type of

a. fertilizer

c. Antacid

b. Insecticide

d. All of the Above

33. Glucose and Fructose are

- a. isomer of each other
- b. homologous to each other
- c. both a and b
- d. None

34. The Physical state of glass is

a. Solid

b. Liquid

c. Gas

d. None

35. Boric oxide is added in glass to make it .....

a. soluble

b. Insoluble

c. Transparent

d. Heat resist

36. Zypsum is added in cement

- a. to increase its setting time
- b. to decrease its setting time
- c. to make it powder
- d. all the above

37. Which one of the following is used to make formic acid?

a. methyl alcohol

b. ethyl alcohol

c. propyl alcohol

d. Butyl alcohol

38. Salt is added to the ceramics to make it

a. porous

b. hard

c. shiny

d. non - porous

39. The difference between two consecutive member of a homologous series is

a.  $-CH_4$

b.  $-C_2H_2$

c.  $-CH_3$

d.  $-CH_2$

40. Alkali metals are kept in group

- a. I A                      b. II A                      c. III A                      d. IV A

### **BIOLOGY**

41. Who is regarded as father of genetics?

- a. Mendeleev              b. Darwin              c. Lamarck              d. Mendel

42. Genotypic ratio of monohybrid cross is

- a. 3:1                      b. 1:1:1                      c. 1:2:1                      d. 9:3:3:1

43. Phenotypically how many types of plant is reported in F<sub>2</sub> generation?

- a. 1                      b. 2                      c. 3                      d. 4

44. Which one of the following chromosomes have only one arm?

- a. Metacentric                      c. Acrocentric  
b. sub-metacentric                      d. Telocentric

45. Transverse binary fission is more common in .....

- a. *Paramecium*              b. *Euglena*              c. *Amoeba*              d. *Hydra*

46. Which one of the following written correctly?

- a. Homo sapiens              b. homo sapiens              c. Homo sapiens              d. Homo sapiens

47. Which one of the following vein terminates into capillaries?

- a. Pulmonary vein                      c. Renal Vein  
b. Hepatic Portal vein                      d. Hepatic vein

48. Which one of the following contains nucleus?

- a. RBC                      b. WBC                      c. Platelets                      d. All

49. Uric acid is specially formed from

- a. Protein                      b. carbohydrate                      c. fat                      d. vitamin

50. Diabetes insipidus stands for

- a. increase in level of water                      c. Decrease in level of water  
b. increase in level of sugar                      d. Decrease in level of sugar

51. The membrane of meninges attached with

- a. Diameter                      b. Piameter                      c. Archanoid                      d. CSF

52. Which one of the following is heterocrine gland?

- a. Pituitary gland              b. Thyroid gland              c. Parathyroid gland              d. Pancreas

53. Name artery which supplies blood to kidney

- a. Renal artery              b. carotid artery              c. Hepatic artery              d. Innominate

54. Drone is developed from

- a. fertilized ovum  
b. unfertilized ovum  
c. can develop from both fertilized and unfertilized ovum  
d. develops by feeding royal jelly

55. Silk is formed by silk worm in its  
 a. egg stage                      b. larval stage                      c. pupa stage                      d. adult stage
56. Queen bee is  
 a. sterile female                      b. sterile male                      c. fertile female                      d. fertile male
57. Cherry is useful for a patient of uric acid because  
 a. it contains acid                      c. it contains anthocyanin  
 b. it contains base                      d. it contains antibiotic
58. Hypertension stands for  
 a. High blood pressure                      c. High sugar level  
 b. Low blood pressure                      d. Low sugar level
59. Ventral root of spinal cord contains  
 a. sensory nerve                      b. motor nerve                      c. mixed nerve                      d. all of the above
60. Dendrites carry nerve impulse from  
 a. away from cell body                      c. both direction  
 b. towards the cell body                      d. none

### **ENGLISH**

Select the best options.

61. He reads ..... Bible in ..... evening  
 a. the, a                      b. a, the                      c. the, the                      d. the, an
62. ....his loneliness , he tries to be happy  
 a. In spite of                      b. Although                      c. Because of                      d. In order to
63. The lastest ..... is true  
 a. news                      b. newes                      c. news                      d. none
64. Half of the books .....novels  
 a. Is                      b. are                      c. was                      d. were
65. Sita is a poet, she .....many poems  
 a. wrote                      b. had                      c. written                      d. was
66. Do you let your kids .....?  
 a. become                      b. to become                      c. will become                      d. became
67. If I ..... you , I would accept his job offer .  
 a. am                      b. was                      c. were                      d. would be
68. The book .... last year  
 a. Was written                      b. has been written                      c. was written                      d. wrote
69. She ..... her holiday at Nagar Kot.  
 a. Said me about                      c. told me about  
 b. told about me                      d. told about
70. Do you know .....?

- a. Where he went? c. where he went  
 b. Where did he go d. he were went
71. "Home these people". The underlined word is .....  
 a. noun b. verb c. adjective d. none
72. I love playing football but my brother .....  
 a. Don't b. didn't c. doesn't d. loves
73. The condition of the patient is comparatively.  
 a. good b. better c. well d. the best
74. He came to America ..... Nov 1991  
 a. In b. on c. at d. since
75. Everybody is good here .....?  
 a. Isn't it? b. aren't we c. are they d. aren't they?
76. The word..... has current spelling  
 a. Hetrogeneous c. Heterogeneous  
 b. Haterogenous d. Heteroginious
77. The book is dirty see a ..... of dust  
 a. Heap b. pile c. lock d. mass
78. A government controlled by the rich  
 a. Oligarchy b. aristocracy c. plutocracy d. zoism
79. The word "Abandon" is synonymous to following word  
 a. Desert b. prosecute c. hold d. keep
80. We are ..... Tom to select him as our leader.  
 a. In defence of b. dept of c. devil of d. with the dew on

### MATHS

81. If A is a subset U of, which one of the following relation is always true?  
 a.  $A \cup U = U$  b.  $A \cap U = U$  c.  $A \cap A = \emptyset$  d.  $A \cup \emptyset = \emptyset$
82. If the discount amount given in an item is 25% of its selling price, then the actual rate of discount is  
 a.  $16\frac{2}{3}\%$  b. 20% c. 25% d. 30%
83. If the principal is Rs P, the period is T years and m months and the rate R% per annum then the compound amount is,  
 a.  $P \left(1 + \frac{R}{100}\right)^T \left(1 + \frac{R}{1200}\right)^m$  b.  $P \left(1 + \frac{R}{200}\right)^T \left(1 + \frac{R}{1200}\right)^m$

$$c. P \left(1 + \frac{R}{200}\right)^T \left(1 + \frac{mR}{1200}\right)$$

$$d. P \left(1 + \frac{R}{100}\right)^T \left(1 + \frac{mR}{1200}\right)$$

84. If  $d$  is the length of a diagonal of a square then the area of square is

a.  $d^2$

b.  $\frac{d^2}{4}$

c.  $\frac{d^2}{2}$

d.  $\frac{d^2}{8}$

85. What is the rationalizing factor of  $\sqrt[3]{2}$  ?

a.  $\sqrt[3]{2}$

b.  $\sqrt[3]{4}$

c.  $\sqrt[3]{8}$

d.  $\sqrt[3]{16}$

86. If  $2^a 3^b 5^c = 2500$ , then what will be value of  $a+b+c$  is

a. 5

b. 6

c. 7

d. 8

87. A two-digit number is four times the sum and three times the product of its digits, then the number is

a. 24

b. 42

c. 15

d. 51

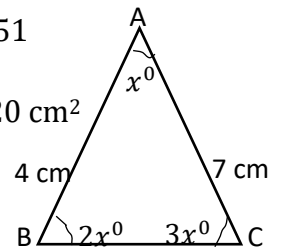
88. In adjoining figure, the area of  $\Delta ABC$

a.  $28\text{cm}^2$

b.  $14\text{m}^2$

c.  $7\text{cm}^2$

d.  $20\text{cm}^2$



89. For any event  $E$ ,  $P(\bar{E})$  is equal to

a.  $-P(E)$

c.  $P(E) - 1$

b.  $1 - P(E)$

d.  $P(E)$

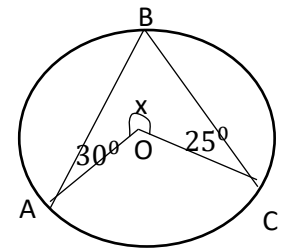
90. In the adjoining figure, the value of  $x$  is

a.  $55^\circ$

b.  $110^\circ$

c.  $250^\circ$

d.  $125^\circ$



91. If order of matrix  $A$  is  $(x+2) \times (y+2)$  and order of matrix  $B$  is

$(x+1) \times y$ . If  $AB$  and  $BA$  both are defined then values of  $x$  and  $y$  are.

a. 0 and 1

b. 1 and 0

c. 2 and 1

d. none of these

92. The value of  $\cos 1^\circ + \cos 2^\circ + \cos 3^\circ + \dots + \cos 180^\circ$  is

a. -1

b. 1

c. 0

d. none

93. For what value of  $k$ , the line joining  $3x - ky + 7 = 0$  is perpendicular to the line joining  $(4, 3)$  and  $(5, -3)$ ?

a.  $1/18$

b. 18

c. -18

d.  $-1/18$

94. If  $S_n = n^3 + n^2$  then  $t_6$  is

a. 225

b. 102

c. 150

d. none of these

95. If  $|\vec{x} + \vec{y}| = |\vec{x} - \vec{y}|$  then

a.  $\vec{x}$  is parallel to  $\vec{y}$

b.  $\vec{x}$  is perpendicular  $\vec{y}$

c.  $|\vec{x}| = |\vec{y}|$

d. None of these

96. If  $x + y = 3(P + Q)$ , which of the following is arithmetic mean of  $x, y, P$  and  $Q$ ?

a.  $3(A+Q)$

b.  $(P+Q)$

c.  $(x+y+P+Q)/4$

d.  $3(P+Q)/4$



97. If  $\cos\left(\frac{\alpha}{3}\right) = \frac{1}{2}$ , then the value of  $\cos\alpha$

a. -1

b. 0

c. 1

d.  $\sqrt{3}$

98. A matrix associated to the reflection in y - axis is

a.  $\begin{pmatrix} 1 & 0 \\ 0 & 1 \end{pmatrix}$

b.  $\begin{pmatrix} 1 & 1 \\ 0 & -1 \end{pmatrix}$

c.  $\begin{pmatrix} -1 & 0 \\ 0 & 1 \end{pmatrix}$

d.  $\begin{pmatrix} 0 & -1 \\ 1 & 0 \end{pmatrix}$

99. Under which of the following conditions the inverse of the function is possible?

a. bijective

b. surjective

c. injective

d. None of these

100. If the intersection plane is parallel to the generator of cone then what conic does it form?

a. Circle

b. Parabola

c. Hyperbola

d. Ellipse

