



## ENTRANCE EXAM MODEL QUESTION - 2083

### SCIENCE

Do not write on question paper. Use Answer sheet.

- Newton's first law of motion gives, the definition of
  - force
  - velocity
  - acceleration
  - momentum
- How many stars are there in our solar system?
  - 2
  - 1
  - 3
  - 4
- The value of  $g$  depends on
  - Mass of Earth only
  - Radius of Earth only
  - Mass and radius of Earth both
  - Is a constant independent of mass and radius of Earth
- When water is heated from  $0^{\circ}\text{C}$  to  $10^{\circ}\text{C}$ , its volume
  - increase
  - decrease
  - does not change
  - first decrease and then increase
- Sky appear blue due to:
  - more scattering of light of larger wavelength
  - more scattering of light of lesser wavelength
  - lens of eye is blue
  - All of above
- The resistance of a wire increases with \_\_\_\_\_ of the wire.
  - increasing length
  - decreasing cross section area
  - both of above
  - none of above
- A bus of mass 1000 Kg is moving with velocity 25 m/s. What is the amount of force required to stop the bus in 5 sec?
  - 2000N
  - 4000N
  - 5000N
  - 3000N
- Which of the following is the smallest unit of length?
  - millimeter
  - micrometer
  - nanometer
  - angstrom unit
- Electric current is ..... quantity.
  - Vector
  - Scalar
  - both a and b
  - None of above
- The terminal (final) velocity of body thrown upward is
  - 0m/s
  - 9.8m/s
  - depends on height
  - depends on mass
- Which law is given by the statement "Any pressure applied on an enclosed liquid is transmitted equally to all parts."
  - Pascal's law
  - Archimedes principle
  - Principle of floatation
  - Boyle's law
- Which of the following is the SI unit of temperature?
  - kelvin
  - degree celsius
  - fahrenheit
  - Joule
- We see rainbow when it rains in presence of sunlight:
  - due to reflection of light
  - due to refraction of light
  - due to dispersion of light
  - due to total internal reflection of light
- The acceleration due to gravity of moon is  $1.67\text{m/s}^2$ . How much mass can a weight lifter lift on the surface of the moon if he can lift 100kg on the earth?
  - 980 kg
  - 167 kg
  - 486.5 kg
  - 586.8 kg
- The distinction between the voice of a man and that of woman is possible because of difference between:
  - loudness of two sounds
  - intensity of two sounds
  - pitch of two sounds
  - quality of two sounds
- If the simple interest in two years at the rate of 5% becomes Rs 20, what is the principal?
  - Rs. 200
  - Rs. 300
  - Rs. 400
  - Rs. 60
- The value of  $\sin 90^{\circ}$ 
  - 1
  - 1
  - $\infty$
  - 0
- If mean = 16 and median = 15, what is the value of mode?
  - 20
  - 28
  - 13
  - 14

19. If sum of two angles is  $90^\circ$ , then they are called

- a) right angle                      b) Complementary angle                      c) supplementary angle                      d) Obtuse angle

20. Distance between two points (3, 0) and (0, 4) is

- a) 15 unit                      b) 20 unit                      c) 25 unit                      d) 5 unit

21.  $\overline{A \cup B}$  is equal to

- a)  $\overline{A} \cup \overline{B}$                       b)  $\overline{A} \cap \overline{B}$                       c)  $\overline{A \cap B}$                       d) None of them

22. The limit of the function  $f(x) = \frac{|x-3|}{x-3}$  at  $x = 3$  is:

- a) -1                      b) 1                      c) 0                      d) Does not exist

23. If  $m = \begin{pmatrix} 3 & 1 \\ 2 & -1 \end{pmatrix}$  and  $mn = \begin{pmatrix} 7 & -9 \\ -2 & -6 \end{pmatrix}$ , then n equals to:

- a)  $\begin{pmatrix} 1 & 0 \\ 0 & 1 \end{pmatrix}$                       b)  $\begin{pmatrix} 1 & 3 \\ 4 & 0 \end{pmatrix}$                       c)  $\begin{pmatrix} 1 & 3 \\ -4 & 0 \end{pmatrix}$                       d)  $\begin{pmatrix} 1 & -3 \\ 4 & 0 \end{pmatrix}$

24. If the equations of diameters of a circle  $x^2 + y^2 - 16x + 4y - 32 = 0$  and  $x + y = 6$  and  $x + 2y = 4$  then the radius of the circle is:

- a) 5 units                      b) 10 units                      c) 15 units                      d) 20 units

25. If  $|\vec{a}| = 13$ ,  $|\vec{b}| = 5$  and  $\vec{a} \cdot \vec{b} = 60$ , find the  $|\vec{a} \times \vec{b}| =$

- a) 20                      b) 25                      c) 30                      d) 15

26. Let  $f(x) = x^3 - x - 18$ , then number of negative zero's of the function is

- a) 1                      b) 2                      c) 3                      d) 0

27. Which one of the following is the length of perpendicular from origin to the line  $\frac{x}{a} + \frac{y}{b} = 1$ ?

- a)  $\sqrt{a^2 + b^2}$                       b)  $\frac{ab}{\sqrt{a^2 + b^2}}$                       c)  $\frac{1}{\sqrt{a^2 + b^2}}$                       d) 1

28. A dealer gains a selling price of 4 watches by selling 20 watches. What is the percentage profit?

- a) 15%                      b) 20%                      c) 30%                      d) 25%.

29. Three coins are tossed simultaneously, find the probability of getting at least 2 heads.

- a) 1                      b) 1/2                      c) 1/3                      d) 1/4

30. For what values of K are the points (1, -1), (K, 1) and (4, 5) collinear?

- a) -4                      b) 3                      c) 3                      d) 2

31.  $9^x - 4 \cdot 3^{x+1} + 27 = 0$ , then x =

- a) 1                      b) -1                      c) -2                      d) 0

32. What is the 155<sup>th</sup> term of the sequence 4, 8, 1, 7, 4, 8, 1, 7, .....

- a) 4                      b) 8                      c) 1                      d) 7

33. If the ratio of two numbers is 5:6 and their product is 120. Find the numbers.

- a) 10, 12                      b) 12, 10                      c) 20, 6                      d) 40, 3

34. A father's age was four times and two times of his son at 2042 and 2060 respectively. Find the year of birth of son?

- a) 2040                      b) 2038                      c) 2035                      d) 2033

35. If  $x + \frac{1}{x} = 2$  then  $x - \frac{1}{x}$  is equal to

- a) 0                      b) 1                      c) 2                      d) -2

36. Sublimation is a process in which a solid

- a) Changes into vapour form                      b) Changes into another allotropic form  
c) Changes into liquid form                      d) None

37. During electrolysis, cathode gets

- a) Reduced                      b) Oxidized                      c) Both                      d) None

38. Molecular formula of benzene is

- a)  $C_2H_4$                       b)  $C_3H_6$                       c)  $C_6H_6$                       d)  $C_6H_5OH$

- 39. The element with atomic no. 24 is:**  
 a) Iron                                      b) Cadmium                                      c) Chromium                                      d) Copper
- 40. Which of the following elements does not belong to alkali metals?**  
 a) Na                                      b) Li                                      c) Mg                                      d) K
- 41. At what temperature carbondioxide gas become dry ice?**  
 a)  $-78^{\circ}\text{C}$                                       b)  $-88^{\circ}\text{C}$                                       c)  $-68^{\circ}\text{C}$                                       d) None of above
- 42. How many times carbondioxide is heavier than air?**  
 a) 1.5 times                                      b) 2 times                                      c) 2.5 times                                      d) 3 times
- 43. The IUPAC name of  $\text{CH}_3\text{CHO}$  is:**  
 a) Ethanal                                      b) Methanal                                      c) Formyl chloride                                      d) Ethane
- 44. The most active non metallic element is**  
 a) Chloride                                      b) Flourine                                      c) Oxygen                                      d) Sulphur
- 45. The formula of washing soda is**  
 a.  $\text{Na}_2\text{CO}_3 \cdot 10\text{H}_2\text{O}$                                       b.  $\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$                                       c.  $\text{FeSO}_4 \cdot 7\text{H}_2\text{O}$                                       d.  $\text{MgSO}_4 \cdot 7\text{H}_2\text{O}$
- 46. Bacteria commonly reproduce vegetatively by**  
 a) Binary fission                                      b) Conjugation                                      c) Oidia                                      d) Budding
- 47. Viruses can multiply in**  
 a) Bacteria only                                      b) All living cells                                      c) Specific living cells                                      d) Rotten food
- 48. Branch of Biology that deals with structure and functions of cell is**  
 a) Histology                                      b) Morphology                                      c) Cytology                                      d) Physiology
- 49. The phase of cell cycle during which "DNA polymerase" is functionally active.**  
 a) G2                                      b) S                                      c) M                                      d) G1
- 50. Earthworm feeds on:**  
 a) Grass                                      b) Soil                                      c) Insects                                      d) Humus
- 51. The pacemaker of heart is**  
 a) AV node                                      b) SA node                                      c) SV node                                      d) Tricuspid valve
- 52. Father of genetics is**  
 a) Gregor Johann Mendal                                      b) Watson and Crick                                      c) T.H Morgan                                      d) Aristotle
- 53. Successful land plants are**  
 a) Algae                                      b) Ferns                                      c) Bryophytes                                      d) Gymnosperms
- 54. Meiosis is responsible for**  
 a) Crossing over                                      b) Cell division                                      c) Mutation                                      d) Cell differentiation
- 55. Bilateral symmetry is absent in**  
 a) Obelia                                      b) Frog                                      c) Octopus                                      d) Mammal
- 56. The principal and teacher of the school ..... the regulations of school.**  
 a) have changed                                      b) has changed                                      c) change                                      d) should have changed
- 57. The meaning of the phrase 'A storm in a teacup' is**  
 a) Great noise                                      b) A danger signal  
 c) Unexpected event                                      d) Much excitement over something trivial
- 58. You'd better go out, -----?**  
 a) didn't you                                      b) hadn't you                                      c) had not you                                      d) wouldn't you
- 59. I attended the meeting ..... my father.**  
 a) in spite of                                      b) in front of                                      c) instead of                                      d) because of
- 60. The teacher said to me, "You can do if you try".**  
 a) The teacher told me that she could do if I tried.  
 b) The teacher told me that I could do if I tried.  
 c) The teacher told me that you can do if you try.  
 d) The teacher told me that I can do if I try.

61. You will pass the final exam \_\_\_\_\_ you study hard.  
 a) because of                      b) so that                              c) provided that                      d) as though
62. Had I born in the USA, I \_\_\_\_\_ a car.  
 a) had purchased                      b) will have purchased                      c) would purchase                      d) would have purchased
63. I congratulated ..... her success  
 a.to                                      b. on                                      c. for                                      d. in
64. He gave up -----.  
 a) gamble                              b) to gamble                              c) gambling                              d) to gamble
65. The diet is deficient ..... vitamins.  
 a) for                                      b) at                                      c) in                                      d) on
66. I replied that I came from London when she said to me, " .....?"  
 a) where do I come from      b) where you come from      c) where do you come from      d) where I came from
67. Which is the correct synonym of the word consent?  
 a) permission                      b) approval                              c) reply                                      d) disgrace
68. Which is the correct antonym of the word 'intentional'  
 a) dangerous                      b) inimurate                              c) accidental                              d) incentive
69. Which of the following has same initial consonant sound as check?  
 a) champange                      b) chemistry                              c) chair                                      d) click
70. .... European student has recently joined our class .  
 a) an                                      b) a                                      c) the                                      d) none
71. Not only ..... she read but she also wrote.  
 a) did                                      b) had                                      c) does                                      d) none
72. .... behave that everybody felt offended.  
 a) So rudely did she                      b) So rudely she did                      c) So she did rudely                      d) She rudely did so
73. Never ..... listened to such beautiful music as we heard on the radio last night.  
 a) before I have                      b) before have I                      c) before I                                      d) I have before
74. The number of students of this institute ..... 1500.  
 a) is                                      b) are                                      c) were                                      d) have
75. The founder and principal ..... decided it.  
 a) has                                      b) been                                      c) is                                      d) have

*Best of Luck*