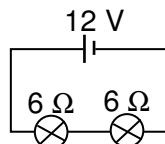


PHYSICS

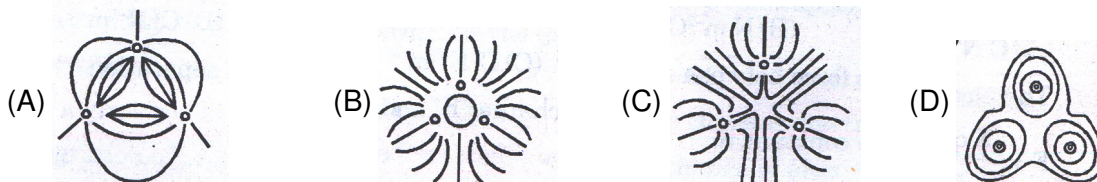
CHOOSE THE SINGLE CORRECT OPTION:

- An electron is moving towards east in a magnetic field acting vertically downwards. So the electron is deflected towards
(A) south (B) north (C) east (D) west
- A man is at rest in the middle of a pond on perfectly smooth ice. He can get himself to the shore by making use of Newton's
(A) first law (B) second law (C) third law (D) all the laws
- The particle which is deflected by electric field is :
(A) γ - rays (B) X - rays (C) Neutrons (D) α - particles
- In case of concave mirror, the minimum distance between a real object and its real image is :
(A) f (B) 2f (C) 4f (D) zero
- The kinetic energy of a body becomes twice its initial value. The new momentum of the body will be
(A) 2 times (B) $\sqrt{2}$ times (C) 4 times (D) unchanged
- The refractive index of diamond is $5/2$. The refractive index of glass is $3/2$. The refractive index of glass w.r.t. to diamond is :
(A) $3/5$ (B) $5/3$ (C) $2/5$ (D) $5/2$
- The value of G depends upon-
(A) the masses of bodies (B) the medium between the bodies
(C) the temperature of bodies (D) none of above
- A bulb rated 240 V, 100 W is connected to a 120 V supply. Which of the following is correct?
(A) The bulbs fuses (B) The bulb is lighted but is dim
(C) The bulb lights up to normal brightness (D) The bulb lighted initially then fuses away
- A polythene piece rubbed with wool is found to have a negative charge of 3.6×10^{-7} C. Calculate the number of electrons transferred from wool to polythene :
(A) 6.25×10^{18} (B) 2.25×10^{12} (C) 2.05×10^{-18} (D) 2.18×10^{10}
- It is possible to observe total internal reflection when a ray travels from
(A) air into water (B) air into glass (C) water into glass (D) glass into water
- A positively charged particle moving due east enters a region of uniform magnetic field directed vertically upwards. The particle will
(A) get deflected in vertically upward direction.
(B) move in circular path with an increased speed
(C) move in circular path with a decreased speed
(D) move in a circular path with a uniform speed
- What is the power dissipated by each lamp of resistance 6Ω ?



- (A) 1 W (B) 2 W (C) 6 W (D) 12 W
- In the direction of electric field, the electric potential :
(A) decreases (B) increases
(C) remains uncharged (D) becomes zero
 - Given three equal resistors, how many different combinations of these three resistances can be made?
(A) Four (B) Five (C) Six (D) Three

15. Three positive charges of equal value q are placed at the vertices of an equilateral triangle. From the following how the resulting lines of force should be sketched as in :



□□□

CHEMISTRY

CHOOSE THE SINGLE CORRECT OPTION:

16. A mixture of three liquids X, Y and Z when subject to fractional distillation, the order in which the vapours condense back to liquid state in fractionating tower is Y, X and Z. Arrange them in the correct order of vapour pressures.

(A) $Z < X < Y$ (B) $Y < X < Z$ (C) $X < Z < Y$ (D) $X < Y < Z$

17. The least number of molecules are in-

(A) 2 gm Hydrogen (B) 8 gm oxygen (C) 4 gm Nitrogen (D) 16 gm CO_2

18. Match the following column-I with column-II :

Column - I

- (i) Empirical formula of glucose
 (ii) Ideal gas
 (iii) Percentage of carbon in methane
 (iv) Empirical formula of oxalic Acid

Column - II

- (P) less intermolecular force
 (Q) 75%
 (R) CH_2O
 (S) CHO_2

Correct code is :

(A) (i) \rightarrow R; (ii) \rightarrow Q; (iii) \rightarrow S; (iv) \rightarrow P (B) (i) \rightarrow P; (ii) \rightarrow S; (iii) \rightarrow Q; (iv) \rightarrow R
 (C) (i) \rightarrow R; (ii) \rightarrow P; (iii) \rightarrow Q; (iv) \rightarrow S (D) (i) \rightarrow S; (ii) \rightarrow R; (iii) \rightarrow P; (iv) \rightarrow Q

19. The total number of protons, electrons and neutrons in 12 gm of $^{12}_6\text{C}$ is

(A) 1.084×10^{25} (B) 6.022×10^{23} (C) 6.022×10^{22} (D) 18

20. The pH of 0.001 M HCl solution is

(A) 1 (B) 2 (C) 3 (D) 5

21. In which of the following reaction underlined substance is oxidised.

(A) $3\text{Mg} + \underline{\text{N}_2} \rightarrow \text{Mg}_3\text{N}_2$ (B) $2\text{KI} + \underline{\text{Br}_2} \rightarrow 2\text{KBr} + \text{I}_2$
 (C) $\underline{\text{CuO}} + \text{H}_2 \rightarrow \text{Cu} + \text{H}_2\text{O}$ (D) $\underline{\text{CO}} + \text{Cl}_2 \rightarrow \text{COCl}_2$

22. Which of the following is not a redox reaction

(A) $\text{H}_2 + \text{Br}_2 \rightarrow 2\text{HBr}$ (B) $2\text{H}_2\text{S} + \text{SO}_2 \rightarrow 2\text{H}_2\text{O} + 3\text{S}$
 (C) $\text{BaO} + \text{H}_2\text{SO}_4 \rightarrow \text{BaSO}_4 + \text{H}_2\text{O}$ (D) $2\text{KClO}_3 \rightarrow 2\text{KCl} + 3\text{O}_2$

23. Equivalent mass of a metal is 12 gmol^{-1} . Hence equivalent mass of its oxide is

(A) 20 gmol^{-1} (B) 28 gmol^{-1} (C) 32 gmol^{-1} (D) 40 gmol^{-1}

24. A gas has a vapour density 11.2. The volume occupied by 1 gm of the gas at STP is

(A) 1 L (B) 11.2 L (C) 22.4 L (D) 4 L

25. Three isotopes of an element has mass numbers (m) , $(m + 1)$, $(m + 2)$. If the average atomic mass is $(m + 0.5)$. Then which of the following ratio may be accepted for (m) , $(m + 1)$ & $(m + 2)$ in that order

(A) 1 : 1 : 1 (B) 4 : 1 : 1 (C) 3 : 2 : 1 (D) 2 : 1 : 1

26. Match the following column-I with column-II :

Column – I

- (i) Molten NaCl
- (ii) Aqueous NaCl
- (iii) Aqueous CH_3COONa
- (iv) Aqueous NH_4Cl

Column – II

- (P) $\text{pH} < 7$
- (Q) $\text{pH} = 7$
- (R) Electrolytic solution
- (S) $\text{pH} > 7$

Correct code is :

- (A) i – R; ii – Q,R; iii – R,S; iv –P,R
- (B) i – R; ii – P,R; iii – S; iv – R,Q
- (C) i – P; ii – Q; iii – R; iv – S
- (D) i → Q; ii – P,Q; iii – S,R; iv –P,Q,R

27. The density of a gas is 1.964 gm/L at 273 K and 1 atm pressure. The gas is

- (A) CH_4
- (B) C_2H_6
- (C) CO_2
- (D) Xe

28. Identify the correct order of size of the following:

- (A) $\text{Ca}^{2+} < \text{K}^+ < \text{Ar} < \text{Cl}^- < \text{S}^{2-}$
- (B) $\text{Ar} < \text{Ca}^{2+} < \text{K}^+ < \text{Cl}^- < \text{S}^{2-}$
- (C) $\text{Ca}^{2+} < \text{Ar} < \text{K}^+ < \text{Cl}^- < \text{S}^{2-}$
- (D) $\text{Ca}^{2+} < \text{K}^+ < \text{Ar} < \text{S}^{2-} < \text{Cl}^-$

29. The ions O^{2-} , F^- , Na^+ , Mg^{2+} and Al^{3+} are isoelectronic. Their radii show:

- (A) an increase from O^{2-} and F^- then decreases from Na^+ to Al^{3+}
- (B) a decrease from O^{2-} to F^- and then increase from Na^+ to Al^{3+}
- (C) a significant increase from O^{2-} to Al^{3+}
- (D) a significant decrease from O^{2-} to Al^{3+}

30. What mass of carbon dioxide (CO_2) will contain 3.011×10^{23} molecules?

- (A) 11.0 g
- (B) 22.0 g
- (C) 4.4 g
- (D) 44.0 g



BIOLOGY

CHOOSE THE SINGLE CORRECT OPTION:

31. Volant adaptation is for

- (A) digging
- (B) running fast
- (C) living on tree
- (D) flying

32. Carbon monoxide (CO) is harmful to man because

- (A) it is carcinogenic
- (B) it form carbonic acid
- (C) it is more in air
- (D) it compete with O_2 for Hb

33. Pigment leghaemoglobin acts as carrier for

- (A) oxygen
- (B) nitrogen
- (C) bacterroids
- (D) nitrogenase

34. Water in plants raises through

- (A) Xylem
- (B) Phloem
- (C) Pith
- (D) Cortex

35. Vitamin A: Nightblindness:: Vitamin C : ?

- (A) Rickets
- (B) Anaemia
- (C) Scurvey
- (D) Rough skin

36. The strongest muscles of the human body are found in

- (A) wrist
- (B) jaws
- (C) upper arm
- (D) thigh

37. Injury to causes sudden death.

- (A) cerebrum
- (B) medulla oblongata
- (C) cerebellum
- (D) none of these

38. The part of internal ear responsible for hearing is

- (A) cochlea
- (B) semicircular canal
- (C) utriculus
- (D) saculus

39. Sex of child is determined by
- (A) father (B) mother
(C) both father and mother (D) god
40. Meiosis occurs in
- (A) all diploid cells
(B) all cells with even number of chromosomes
(C) certain specific cells only
(D) all of these
41. Wooden doors swell up and get stuck up during rainy season due to
- (A) Endosmosis (B) Exosmosis (C) Imbibitions (D) Capillarity
42. Proximal and distal convoluted tubules are part of
- (A) vas deferens (B) nephron (C) oviduct (D) caecum
43. Response to the stimulus given by the plant Mimosa is described as
- (A) photonastic (B) thermonastic (C) thigmonastic (D) chemonastic
44. is not fat soluble vitamin.
- (A) A (B) D (C) E (D) C
45. is a tissue.
- (A) kidney (B) lungs (C) stomach (D) blood

□□□

Answer Key

1. A	2. C	3. D	4. D	5. B	6. A	7. D	8. B	9. B	10. D
11. D	12. C	13. A	14. A	15. C	16. C	17. C	18. C	19. A	20. C
21. D	22. C	23. C	24. A	25. B	26. A	27. C	28. A	29. D	30. B
31. D	32. D	33. A	34. A	35. C	36. B	37. B	38. A	39. A	40. C
41. C	42. B	43. C	44. D	45. D					

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