

Section-A

Multiple Choice Questions (MCQ's)

Q.1 Choose the correct answer for each from the given options:

- (i) A simple covalent molecule possesses two bond pairs and two lone pairs around the central atom, its shape should be:
 (a) linear (b) Planar Trigonal (c) angular (d) None
- (ii) The correct relation between debye and coulomb meter is:
 (a) $1 \text{ D} = 3.33 \times 10^{-30} \text{ Cm}$ (b) $1 \text{ D} = 1.6 \times 10^{-19} \text{ Cm}$
 (c) $1 \text{ D} = 1.88 \times 10^{-12} \text{ Cm}$ (d) $1 \text{ D} = 1.23 \times 10^{-8} \text{ Cm}$
- (iii) The bond order of N_2 molecule is:
 (a) 0 (b) 1 (c) 2 (d) 3
- (iv) For Avogadro's number, this statement is incorrect:
 (a) It is the no. of particles in one moles of any substances.
 (b) Its numerical value is 6.02×10^{23}
 (c) Its value change if temperature increases
 (d) Its value change if number of moles increases
- (v) The minimum number of moles are present in:
 (a) 1 dm^3 of methane gas at STP
 (b) 5 dm^3 of helium gas at STP
 (c) 10 dm^3 of hydrogen a gas at STP
 (d) 22.4 dm^3 of chlorine gas at STP
- (vi) In 1935 A.D James Chadwick was awarded Nobel Prize because...
 (a) He Discovered proton
 (b) He discovered neutron
 (c) He determined the radius of hydrogen atom.
 (d) He gave the rule for electronic configuration
- (vii) When 4d orbital is filled, the next electron enter into
 (a) 5s (b) 5p (c) 5d (d) 6s
- (viii) According to Graham's Law of diffusion, the ratio of diffusion of H_2 and O_2 are respectively.
 (a) 1:2 (b) 2:1 (c) 1:4 (d) 4:1
- (ix) Collection of gas over water is an example of:
 (a) Graham's law (b) Dalton's
 (c) Avogadro's law (d) Gaylusac law
- (x) Under similar condition CH_4 diffuses Times faster than SO_2 gas:
 (a) 1.5 time (b) 2 time
 (c) 4 time (d) 16 time
- (xi) The boiling point of water (H_2O) is 100°C where as that of hydrogen sulphide (H_2S) is 420°C , This can be attributed to:
 (a) Smaller bond angle of H_2S than H_2O
 (b) Smaller radii of oxygen than sulphur
 (c) High I.P of oxygen than sulphur
 (d) Tendency of water to form hydrogen bond
- (xii) Liquids can form convex meniscus in a narrow glass tube when:
 (a) Cohesive forces are Stronger than adhesive forces
 (b) Adhesive forces are stronger than cohesive forces
 (c) Cohesive and adhesive forces are equal in strength
 (d) None of these
- (xiii) The equilibrium of $\text{N}_{2(g)} + \text{O}_{2(g)} \rightleftharpoons 2\text{NO}_{(g)}$ ($\Delta H = +ve$) is affected by change in:
 (a) Temperature only (b) Pressure only
 (c) Both and pressure (d) Neither temperature nor pressure
- (xiv) In reaction $\text{A}_{(g)} + \text{B}_{(g)} \rightleftharpoons 2\text{C}_{(g)}$, the equilibrium constants $K_p = K_c$ because:
 (a) $\Delta n > 1$ (b) $\Delta n < 1$ (c) $\Delta n = 1$ (d) $\Delta n = 0$
- (xv) The term Elive mass use in law of mass action means:
 (a) No. of mole (b) No. of molecules
 (c) mole dm^3 (d) gram per dm^3
- (xvi) In the equilibrium system of $\text{PCl}_{5(g)} \rightleftharpoons \text{Cl}_{(g)} + \text{Cl}_{2(g)}$, the correct relationship between K_c and K_p is:
 (a) $K_p > K_c$ (b) $K_p < K_c$
 (c) $K_p = K_c$ (d) $\frac{K_p}{K_c} = 1$
- (xvii) The equilibrium of which of the following reaction would not be affected by an increase in pressure:
 (a) $\text{PCl}_{5(g)} \rightleftharpoons \text{PCl}_{3(g)} + \text{Cl}_{2(g)}$ (b) $2\text{NO}_{(g)} + \text{Cl}_{2(g)} \rightleftharpoons 2\text{NOCl}_{(g)}$
 (c) $\text{N}_2(g) + \text{O}_2(g) \rightleftharpoons 2\text{NO}_{(g)}$ (d) $2\text{SO}_2(g) + \text{O}_2(g) \rightleftharpoons 2\text{NO}_3(g)$
- (xviii) The unit of rate constant (K) for the first order reaction is:
 (a) s^{-1} (b) conc. s^{-1} (c) $\text{conc}^{-1} \cdot \text{s}$ (d) $\text{conc.}^{-1} \text{ s}^{-1}$
- (xix) Rate constant of a reaction is affected by:
 (a) Conc. of reactants (b) Conc. of products
 (c) Temperature (d) reaction time
- (xx) Identify the incorrect statement about colloidal solution:
 (a) It shows Tyndall effect (b) Its particles movement is Brownian type
 (c) Its particle size is less than 1 nm (d) Its physical appearance is translucent
- (xxi) For a hypothetical reaction $x + y \rightarrow z$, if the conc. of x is double, the rate increases by square and if the conc. of y is doubled the rate increases by twice. The experimental rate law of this reaction is:
 (a) $R = K [x]^1 [y]^1$ (b) $R = K [x]^1 [y]^2$
 (c) $R = K [x]^2 [y]^1$ (d) $R = K [x]^2 [y]^2$
- (xxii) The unit of rate constant (K) for the first order reaction is:
 (a) s^{-1} (b) conc. s^{-1}
 (c) $\text{conc}^{-1} \cdot \text{s}$ (d) $\text{conc.}^{-1} \text{ s}^{-1}$
- (xxiii) Rate constant of a reaction is affected by:
 (a) Conc. of reactants (b) Conc. of products
 (c) Temperature (d) reaction time