

Note: Write same question number and its part number on answer book as given in question paper.

**SECTION - A (18 × 1 = 18)****CHEMISTRY 2019**

Attempt all parts in this Section.

- Q.1. (a) Choose the correct answer.** (12×1=12)
- (i) How many moles are present in 8gm of Oxygen ...? (a) 0.5 (b) 1 (c) 1.5 (d) 2
- (ii) How many Neutron are present in  $^{24}_{12}\text{Mg}$ ...? (a) 24 (b) 12 (c) 36 (d) 48
- (iii) Who proposed that electricity was made by electrons ...?  
(a) J.J Thomsan (b) Gold stein (c) George Stoney (d) W.Crooks
- (iv) The wave length of Paschen series lies in the region ... (a) U.V (b) x-ray (c) visible (d) I.R
- (v) The Number of sigma bonds between two carbon atoms in  $\text{C}_2\text{H}_2$  ... (a) 1 (b) 2 (c) 3 (d) 4
- (vi) Ethane gives hybridization ... (a)  $sp^3$  (b)  $sp^2$  (c)  $sp$  (d) None of these
- (vii) Atmospheric pressure is measured by ... (a) Thermometer (b) Manometer (c) Barometer (d) Voltmeter
- (viii) Which process involve weaking of attraction between particles...?  
(a) Condensation (b) freezing (c) crystallization (d) evaporation
- (ix) Crystalline solids are also called ... (a) True solid (b) Amorphous solid (c) Pseudo solid (d) Glass
- (x) When  $K_c$  value is small the equilibrium position is ...  
(a) Towards right (b) towards left (c) remain unchanged (d) none of these
- (xi) Ionic product of water is represented by ... (a)  $K_c$  (b)  $PK_a$  (c)  $K_w$  (d)  $PK_b$
- (xii) The cell in which electrical energy is converted into chemical energy called ...  
(a) Galvanic cell (b) Fuel cell (c) Ni-Cd cell (d) Electrolytic cell

**(b) Fill in the blanks with suitable words given in brackets.** (6×1=6)

- (i) Limiting reagent determine with the help of ---- equation. (Balance / Unbalance)
- (ii) Greater the value of Quantum number ---- will be size of an atom. (lesser / greater)
- (iii) Hydrogen molecule have bond order ----. (one / zero)
- (iv) Plasma is 4<sup>th</sup> and ---- state of matter. (ionized / unionized)
- (v) The ---- resistance of flow of liquid is called viscosity. (internal / external)
- (vi) In cubic system all angles are ----. ( $90^\circ$  /  $120^\circ$ )

**SECTION - B (13 × 3 = 39)**

**Q.2. Attempt any thirteen questions. Each question carry equal marks.** (13×3=21)

- (i) Differentiate between limiting and non-limiting reactants. (ii) How many atoms are present in 0.25 mole of Cl? (iii) Why the radius of cation is smaller than its parent radius? (iv) Write the electronic configuration of following  $B = 5$   $Al = 13$   $Ar = 18$ . (v) Distinguish between Sigma and Pi bond. (vi) Is the bent structure of  $\text{H}_2\text{O}$  have dipole movement? (vii) What is different between diffusion and effusion? (viii) Why deep sea divers breath mixture of Helium and Oxygen? (ix) How the cleaning action of detergents is due to Hydrogen bonding? (x) Write three properties of covalent crystals. (xi) Those Gaseous reaction which occurs with the increase of volume go to backward direction when volume is decreased. Why? (xii) Why we show the acid strength in term  $P_H$  rather than  $[H]^+$ ? (xiii) Define 1<sup>st</sup> order reaction. Give an example. (xiv) Differentiate between  $C_a$  and  $C_a^{+2}$ . (xv) Write the difference between ideal and non-ideal solution. (xvi) How you differentiate between  $\Delta E$  and  $\Delta H$ ? (xvii) Calculate oxidation number of S in  $\text{Na}_2\text{S}_2\text{O}_3$   $Na = +1$   $O = -2$

**SECTION - C (4 × 7 = 28)**

Attempt any four questions. Each question carry 07 marks. Draw diagram where necessary.

- Q.3. (a) Write postulates of Bohr's atomic Model.** (4)
- (b) Calculate the mass of 0.75 mole of  $\text{H}_2\text{SO}_4$ . (Molecular mass of  $\text{H}_2\text{SO}_4 = 98\text{gm}$ ) (3)
- Q.4. (a) Write main points of valence bond theory.** (4)
- (b) Draw the Geometry of  $\text{H}_2\text{O}$ . (3)
- Q.5. (a) Define and explain Graham's law of diffusion.** (4)
- (b) Calculate the density of  $\text{CH}_4$  gas at  $0^\circ\text{C}$  at 1 atm pressure. (3)
- Q.6. (a) How you can measured the viscosity?** (4)
- (b) Explain term Polymorphism. (3)
- Q.7. (a) Which information you got when you compared the value of  $K_c$  and  $Q_c$**  (4)
- (b)  $\text{H}_2 + \text{I}_2 \rightleftharpoons 2\text{HI}$ . in this equation the value of  $K_c$  is 794 at 298K but 54 at 700K. What kind of information you get from above statement? (3)
- Q.8. (a) The reaction rate decreases every moment but the rate constant  $K$  of the reaction is a constant Quantity. Why?** (4)
- (b) Calculate the molarity of  $\text{CH}_3\text{COOH}$ . When you have 1.50 mole in 0.5 litre of water? (3)
- Q.9. Describe the construction and working of Galvanic cell.** (7)

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