

Roll No. : \_\_\_\_\_

Objective

Paper Code

**6485**

Intermediate Part First

**CHEMISTRY (Objective) GROUP - I**

Time: 20 Minutes

Marks: 17



Q.No.1

You have four choices for each objective type question as A, B, C and D. The choice which you think is correct, fill the relevant circle in front of that question number on computerized answer sheet. Use marker or pen to fill the circles. Cutting or filling two or more circles will result in zero marks in that question. Attempt as many questions as given in objective type question paper and leave other circles blank.

FSD-1-24

S.#	Questions	A	B	C	D
1	The number of neutrons present in $^{39}_{19}\text{K}$ is:	39	18	20	19
2	Which is a pseudo solid?	$\text{CaF}_2$	Glass	$\text{NaCl}$	$\text{KCl}$
3	When $a \neq b \neq c$ and $\alpha = \gamma = 90^\circ$ , $\beta \neq 90^\circ$ then it is:	Monoclinic	Diclinic	Triclinic	Polycyclic
4	Density of an ideal gas can be calculated by the formula:	$PV = dRT$	$PM = dPV$	$d = \frac{RT}{PM}$	$d = \frac{PM}{RT}$
5	One atmosphere is equal to:	760mm of Hg	1000mm of Hg	760cm of Hg	20 psi
6	The comparative rates at which the solutes move in paper chromatography, depend on:	The size of the paper	$R_f$ values of solutes	Temperature of the experiment	Size of the chromatogram
7	The drying agent used in desiccator is:	$\text{NaCl}$	$\text{KBr}$	$\text{CaCl}_2$	$\text{BaCl}_2$
8	The number of moles of $\text{CO}_2$ which contain 8.0g oxygen:	0.25	0.50	1.0	1.50
9	The mass of one mole of electrons is:	1.008g	0.55mg	0.184g	1.673mg
10	Glucose is converted into ethanol by the enzyme _____ present in yeast.	Urease	Invertase	Sucrose	Zymase
11	If the salt bridge is not used between two half cells, then the voltage:	Decrease rapidly	Decrease slowly	Does not change	Drops to zero
12	A solution of glucose is 10% $\frac{w}{v}$ . The volume in which 1g mole of it is dissolved will be:	$1\text{dm}^3$	$1.8\text{dm}^3$	$200\text{cm}^3$	$900\text{cm}^3$
13	pH of pure water is:	4.4	5.4	7.0	8.0
14	One calorie is equivalent to:	0.4184J	41.84J	4.184J	418.4J
15	Which element has smaller size?	Na	K	Al	Li
16	Which molecule has zero dipole moment?	$\text{NH}_3$	$\text{CHCl}_3$	$\text{H}_2\text{O}$	$\text{BF}_3$
17	The number of electrons in the outermost shell of chloride ( $\text{Cl}^-$ ) ion is:	17	03	01	08

1113-XI124-50000

**SECTION – I**

**2. Write short answers of any EIGHT parts.**

16

- (i) Calculate average atomic mass of neon.
- (ii) Define molar volume. Give one example.
- (iii) What is the function of electric field in mass spectrometer?
- (iv) How crystals are dried in an oven?
- (v) Write any two uses of chromatography.
- (vi) Define crystallization.
- (vii) Write any four properties of gases.
- (viii) Convert 40°C into Kelvin scale.
- (ix) Write two faulty assumptions of kinetic molecular theory.
- (x) Differentiate between reversible and irreversible reactions.
- (xi) State law of mass action.
- (xii) State common ion effect.

**3. Write short answers of any EIGHT parts.**

16

- (i) What are dipole dipole forces? Give one example.
- (ii) Name the factors which affect the London forces.
- (iii) Cleavage of crystals is itself anisotropic behaviour. Explain.
- (iv) Why ice occupies 9% more volume than liquid water?
- (v) Why cathode rays are also called as electrons?
- (vi) Write any four properties of positive rays.
- (vii) Define spectrum and name any two types of spectrums.
- (viii) For azimuthal quantum number,  $\ell = 2$  and  $\ell = 3$ ; calculate total values of magnetic quantum number.
- (ix) Define solubility curve. Name its two types.
- (x) Sum of mole fractions of a mixture is always equal to unity. Justify.
- (xi) What do you mean by order of reaction? Give two examples.
- (xii) What is the effect of temperature on rate of chemical reaction?

**4. Write short answers of any SIX parts.**

12

- (i) Name the factors influencing the ionization energy.
- (ii) How sigma and pi bonds are formed?
- (iii) Draw the structure of ethene ( $\text{CH}_2=\text{CH}_2$ ) using  $\text{sp}^2$  hybridization approach.
- (iv) The bond angles of  $\text{H}_2\text{O}$  and  $\text{NH}_3$  are not  $109.5^\circ$  like  $\text{CH}_4$ . Give reason.
- (v) Define system and surroundings.
- (vi) What is standard enthalpy of atomization? Give an example.
- (vii) Differentiate between endothermic and exothermic reactions.
- (viii) Define (a) Electrolysis (b) Oxidation state.
- (ix) A salt bridge maintains electrical neutrality in the cell. Give reason.

**SECTION – II** Attempt any THREE questions. Each question carries 08 marks.

5. (a) How can we determine the percentage of carbon, hydrogen and oxygen in the given organic compound by combustion analysis? 04  
(b) Define the boiling point. Explain the variation of boiling point with external pressure. 04
6. (a) Discuss defects of Bohr's atomic model. 04  
(b)  $250\text{cm}^3$  of a sample of hydrogen effuses four times as rapidly as  $250\text{cm}^3$  of an unknown gas. Calculate the molar mass of unknown gas. 04
7. (a) Write postulates of VSEPR Theory. Also explain the structures of  $\text{AB}_3$  type molecules in detail. (Any two molecules) 02,02  
(b)  $\text{N}_2(\text{g})$  and  $\text{H}_2(\text{g})$  combine to give  $\text{NH}_3(\text{g})$ . The value of  $K_c$  in this reaction at  $500^\circ\text{C}$  is  $6.0 \times 10^{-2}$ . Calculate the value of  $K_p$  for this reaction:  $\text{N}_2(\text{g}) + 3\text{H}_2(\text{g}) \rightleftharpoons 2\text{NH}_3(\text{g})$  04
8. (a) Differentiate between spontaneous and non-spontaneous reactions with examples. 04  
(b) Write four important industrial applications of electrolysis. 04
9. (a) Describe phenol-water system in detail for partially miscible liquid. 04  
(b) Write any four characteristics of a catalyst. 04

1113-XI124-50000