

Paper Code Number: 2481		2024 (1 st -A) INTERMEDIATE PART-I (11 th Class)		Roll No: <u>MTN-1-24</u>	
CHEMISTRY PAPER-I GROUP-I					
TIME ALLOWED: 20 Minutes		OBJECTIVE		MAXIMUM 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 that bubble in front of that question number, on bubble sheet. Use marker or pen to fill the bubbles. Cutting or filling two or more bubbles will result in zero mark in that question.				
S.#	QUESTIONS	A	B	C	D
1	The largest number of molecules are present in:	3.6g of H_2O	4.8g of C_2H_5OH	2.8g of CO	5.4g to N_2O_5
2	The number of isotopes of nickel are:	1	3	5	7
3	Iodine dissolved in water in presence of KI is due to formation of given species:	I_2	I'	I_4^{-1}	I_3^{-1}
4	The comparative rates at which solute moves in paper chromatography depends on:	Size of paper	R_f value of solute	Temperature of experiment	Size of chromatographic tank
5	Which of given will have highest rate of diffusion?	O_2	CO_2	NH_3	SO_2
6	Molar volume of CO_2 is maximum at:	S.T.P	127°C and 1 atm	0°C and 2 atm	273°C and 2 atm
7	At Murree hills water boils at:	98°C	100°C	0°C	50°C
8	The molecules of CO_2 in dry ice form the:	Ionic crystals	Covalent crystals	Molecular crystals	Any type of crystals
9	Orbitals having same energy are called:	Hybrid orbitals	Valence orbitals	d-orbitals	Degenerate orbitals
10	The nature of positive rays depends upon:	The nature of electrodes	Nature of discharge tube	The nature of residual gas	All of these
11	Which of given species has unpaired electrons in anti-bonding molecular orbitals?	N_2^{-2}	O_2^{+2}	B_2	F_2
12	The bond order of N_2 molecule according to Molecular Orbital Theory is:	Zero	01	02	03
13	For a given process the heat changes at constant pressure(q_p) and at constant volume(q_v) are related to each other as:	$q_p = q_v$	$q_p < q_v$	$q_p > q_v$	$q_p = \frac{q_v}{2}$
14	pH of pure water is:	7.0	5.4	4.4	8.0
15	Molarity of pure water is:	1	18	55.5	6
16	If salt bridge is not used between two half cells then the voltage:	Decreases rapidly	Decreases slowly	Does not change	Drops to zero
17	The unit of rate constant is same as that of rate of reaction in:	First order reaction	Second order reaction	Zero order reaction	Third order reaction

CHEMISTRY PAPER-I GROUP-I

TIME ALLOWED: 2.40 Hours

SUBJECTIVE

MAXIMUM MARKS: 68

NOTE: Write same question number and its parts number on answer book, as given in the question paper.

SECTION-I

2. Attempt any eight parts.

8 × 2 = 16

- (i) Differentiate between ion and molecular ion.
- (ii) What are macromolecules? Give an example.
- (iii) What is justification of two strong peaks in the mass spectrum for bromine while for iodine only one peak at 127 a.m.u is indicated?
- (iv) Define sublimation. Give two examples.
- (v) Give two applications of paper chromatography.
- (vi) What do you mean by distribution coefficient?
- (vii) What is absolute zero?
- (viii) Give two conditions when gases deviate from ideal behaviour.
- (ix) Joule Thomson effect produces cooling. How?
- (x) How can direction of a reversible reaction be predicted by K_c ?
- (xi) Define Buffer capacity.
- (xii) Give two applications of solubility product.

3. Attempt any eight parts.

8 × 2 = 16

- (i) Why boiling point of H_2O is greater than HF ?
- (ii) Evaporation causes cooling. Justify.
- (iii) What is habit of crystal? What is the effect of impurity on shape of crystal?
- (iv) Define Allotropy. Write names of two elements showing allotropy.
- (v) Why positive rays are called canal rays?
- (vi) How dual nature of matter was got verified by Davison and Germer experimentally?
- (vii) How slow neutrons are used to carry out radioactive reactions by emitting gamma radiations?
- (viii) Cathode rays travel in a straight line. Justify with diagram.
- (ix) What is the effect of temperature on phenol-water system?
- (x) Why $AlCl_3$ and $CuSO_4$ give acidic solution in water? Give chemical equation of each.
- (xi) What is dilatometric and refractometric method for the determination of concentration of reactant?
- (xii) What is activation of catalyst?

4. Attempt any six parts.

6 × 2 = 12

- (i) What is dipole moment? Give its various units.
- (ii) What is octet rule? Give two examples of compounds which deviate from it?
- (iii) Write the Lewis structures for (i) CS_2 (ii) HCN
- (iv) How do you compare the bond strengths of polar and non-polar molecules?
- (v) Justify that the burning of a candle is a spontaneous process.
- (vi) Define state and state functions with examples.
- (vii) Differentiate between heat and temperature.
- (viii) A salt bridge maintains the electrical neutrality in the cell. Why?
- (ix) Calculate the oxidation number of "S" in $Cr_2(SO_4)_3$.

SECTION-II

NOTE: Attempt any three questions.

3 × 8 = 24

- 5.(a) Define and differentiate between actual and theoretical yield. Explain why actual yield is usually less than theoretical yield. 1+1+2=4
- (b) Describe with the help of diagram the monometric method for the measurement of vapour pressure. 3+1=4
- 6.(a) $250cm^3$ of the sample of hydrogen effuses four times as rapidly as $250cm^3$ of a unknown gas. Calculate the molar mass of unknown gas. 4
- (b) State and explain main points of Planck's quantum theory. 4
- 7.(a) What is ionization energy? Discuss the variation of ionization energy in the periodic table. 4
- (b) The solubility product of Ag_2CrO_4 is 2.6×10^{-2} at $25^\circ C$. Calculate the solubility of the compound. 4
- 8.(a) Explain the glass calorimetric method for the measurement of enthalpy of reaction. 4
- (b) Define standard electrode potential. Explain the measurement of electrode potential of copper. 4
- 9.(a) Explain Beckmann's Method for measuring depression in freezing point. 4
- (b) Explain the effect of temperature on the rate constant of a reaction by "Arrhenius Equation". 4