

FBD-11-19

Roll No. : _____



Objective
Paper Code
6481

Intermediate Part First (New Scheme)
CHEMISTRY (Objective) GROUP - I
Time: 20 Minutes Marks: 17

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.

S.#	Questions	A	B	C	D
1	The largest number of molecules are present in:	3.6g of H ₂ O	4.8g of C ₂ H ₅ OH	2.8g of CO	5.4g of N ₂ O ₅
2	The number of moles of CO ₂ which contain 8.0g of oxygen:	0.25	0.50	1.00	1.50
3	The comparative rates at which the solutes move in paper chromatography, depend on:	The size of paper	R _f values of solutes	Temperature of the experiment	Size of chromatographic tank used
4	Pressure remaining constant, at which temperature the volume of a gas will become twice of what it is at 0°C?	546°C	200°C	546K	273K
5	The molar volume of CO ₂ is maximum at:	STP	127°C and 1 atm	0°C and 2 atm	273°C and 2 atm
6	Acetone and chloroform are soluble in each other due to:	Intermolecular hydrogen bonding	Instantaneous dipole	Ion-dipole interaction	All of these
7	The molecules of CO ₂ in dry ice form the:	Ionic crystals	Covalent crystals	Molecular crystals	Any type of crystal
8	Orbitals having same energy are called:	Hybrid orbitals	Valence orbitals	Degenerate orbitals	d-orbitals
9	When 6d orbital is complete, the entering electron goes into:	7s	7s	7p	7d
10	The hydrogen halides that has the highest percentage of ionic character:	HI	HBr	HF	HI
11	The number of bonds in nitrogen molecule is:	One sigma and one pi	Three sigma only	One sigma and two pi	Two sigma and one pi
12	Calorie is equivalent to:	0.4184J	41.84J	4.184J	418.4J
13	The pH of 10 ⁻³ mol dm ⁻³ of an aqueous solution of H ₂ SO ₄ is:	3.0	2.7	2.0	1.5
14	The molal boiling point constant is the ratio of the elevation in boiling point is:	Molarity	Molality	Mole fraction of solute	Mole fraction of solvent
15	Molarity of pure water is:	1	18	55.5	6
16	If the salt bridge is not used between two half cells, then the voltage:	Drops to zero	Decreases rapidly	Decreases slowly	Does not change
17	The unit of the rate constant is the same as that of the rate of reaction is:	Zero order reaction	First order reaction	Second order reaction	Third order reaction

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SECTION - I

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Short answers of any EIGHT parts.

- What are molecular ions? How are they formed?
- Define empirical formula. How is it related to molecular formula?
- Define limiting reactant. How does it control the yield of product formed?
- Define chromatography. Give its two applications.
- How are coloured impurities removed from crystals?
- Define absolute zero temperature.
- Give four applications of plasma.
- State Dalton's law of partial pressure. Give its mathematical form.
- Calculate the numerical value of ideal gas constant 'R' in SI units.
- Why is aqueous solution of CuSO_4 acidic in nature?
- State Raoult's law in two different ways.
- One molal solution of urea in water is dilute as compared to one molar solution of urea. Justify it.

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Short answers of any EIGHT parts.

- Water is liquid at room temperature while H_2S is a gas. Comment.
- Why the density of ice is less than water?
- Why heat of vaporization of water is greater than CH_4 ?
- How liquid crystals act as temperature sensor?
- How will you prove that cathode rays travel in straight line?
- Give reason for the production of positive rays.
- Derive de-Broglie equation $\lambda = \frac{h}{mv}$.
- Give two defects in Rutherford atomic model.
- Prove that $\text{p}K_a + \text{p}K_b = 14$ at 25°C .
- Calculate pH of $10^{-4} \text{ mol} \cdot \text{dm}^{-3}$ of HCl .
- Rate of reaction is an ever changing parameter. Give reason.
- How does surface area effect the rate of reaction?

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Short answers of any SIX parts.

- Why atomic radius is greater than cationic radius?
- How ionization energy varies in periodic table?
- O_2 molecule is paramagnetic. Explain.
- Molecular orbital theory is superior to valence bond theory. Comment.
- Prove that $\Delta E = q_v$
- Define heat and work.
- How is voltaic cell represented?
- Define standard electrode potential.
- Write chemical reactions taking place in NICAD cell.

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

- Define yield. How do we calculate the percentage yield of chemical reaction? Also mention the factors which are responsible for low yield of products. 04
- Define hydrogen bonding. Give its three applications. 04
- Assuming NH_3 gas to be ideal. Calculate its mass in grams if 1.00 dm^3 of NH_3 is enclosed in a container at 30°C and 1000 mmHg . 04
- How charge on electron be measured by famous Millikan's oil drop experiment? 04
- Define ionization energy. What factors do affect it? 04
- State first law of thermodynamics. Write its mathematical expression. Prove that $\Delta H = q_p$ 04
- What is the percentage ionization of acetic acid in a solution in which 0.1 mol of it has been dissolved per dm^3 of the solution. ($K_a = 1.85 \times 10^{-5}$) 04
- Discuss four physical methods to determine the rate of reaction. 04
- Define solubility curve. Explain different types of solubility curves with the help of graphs. 04
- Explain voltaic cell with the help of diagram and also discuss its working. 04

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