

Objective
Paper Code
6485

F3D-61-21
Intermediate Part First
CHEMISTRY (Objective) GROUP - I
Time: 20 Minutes Marks: 17

Roll No. : _____



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.

S.#	Questions	A	B	C	D
1	The geometry of SO ₂ molecule is:	Angular	Linear	Tetrahedral	Trigonal pyramid
2	Which one pair is isomorphic in nature:	NaCl, KBr	CaCl ₂ , CaCO ₃	NaF, MgCl ₂	Na ₂ CO ₃ , MgCO ₃
3	When water freezes at 0°C, its density decreases due to:	Cubic structure of ice	Empty spaces present in structure of ice	Change of bond length	Change of bond angle
4	Equal masses of methane and oxygen are mixed in an empty container at 25°C. The fraction of total pressure exerted by oxygen is:	$\frac{1}{3}$	$\frac{8}{9}$	$\frac{1}{9}$	$\frac{16}{17}$
5	Pressure remaining constant at which temperature the volume of a gas will become twice of what it is at 0°C?	546°C	546K	200°C	273K
6	Solvent extraction is an equilibrium process and it is controlled by:	Law of mass action	Distribution law	The amount of solvent used	The amount of solute
7	A beaker contains 9g of water. The number of H-atoms in it is:	N _A of atoms	2 × N _A of atoms	$\frac{1}{2}$ N _A of atoms	3 × N _A of atoms
8	27g of Al will react completely with how much mass of O ₂ to produce Al ₂ O ₃ ?	8g of oxygen	20g of oxygen	24g of oxygen	32g of oxygen
9	The rate of reaction:	Increases as the reaction proceeds	Decreases as the reaction proceeds	Remains constant as the reaction proceeds	May decrease or increase as the reaction proceeds
10	The properties of substances which depend solely on number of particles present is known as:	Additive properties	Constitutive properties	Additive and constitutive properties	Colligative properties
11	Stronger the reducing agent, greater is the:	Oxidation potential	Reduction potential	Redox potential	Electromotive force of cell
12	A solution with pH = 2 is more acidic than a solution with pH = 6 by a factor of:	4	8	1000	10000
13	The value of Δn for the given equilibrium N ₂ + 3H ₂ ⇌ 2NH ₃ is:	-2	+2	+1	+4
14	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 = $\frac{q_v}{2}$
15	In ground state of an atom, the electron is present:	In the nucleus	In the second shell	Nearest to the nucleus	Farthest from the nucleus
16	Which is correct?	Idea of presence of neutron in an atom was provided by Chadwick	Neutron was discovered by using radioactive Beryllium	Fast neutrons having energy 1.2ev	Slow neutrons have energy above 1ev
17	The planer structure of BF ₃ can be explained by the fact that BF ₃ is:	sp-hybridized	sp ² -hybridized	sp ³ -hybridized	dsp ² -hybridized

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Intermediate Part First
CHEMISTRY (Subjective) **GROUP - I**

Roll No. _____

Time: 02:40 Hours Marks: 68 **F80-G1-21**

SECTION - I

2. Write short answers of any EIGHT parts.

16

- (i) Calculate mass in kilograms of 2.6×10^{20} molecules of SO_2 .
- (ii) Calculate mass in grams of 5.136 moles of Ag_2CO_3 .
- (iii) Calculate mass in grams of 2.74 moles of KMnO_4 .
- (iv) Define sublimation. Name two compounds which can be sublimed.
- (v) Define (a) Solvent extraction (b) R_f value.
- (vi) Derive the units for gas constant 'R' in general gas equation when pressure is in atmosphere and volume in dm^3 .
- (vii) Briefly discuss general gas equation.
- (viii) Describe centigrade scale of thermometry.
- (ix) Write two applications of Dalton's law of partial pressure.
- (x) Define fractional distribution. Give one example.
- (xi) What is non ideal solution? Give one example.
- (xii) Define colligative properties. Name four colligative properties.

3. Write short answers of any EIGHT parts.

16

- (i) Write six crystallographic elements of a tetragonal crystal system.
- (ii) Explain crystal lattice briefly.
- (iii) Define transition temperature giving one example.
- (iv) Explain cleavage planes.
- (v) Cathode rays are material particles. Explain it.
- (vi) Write any two properties of neutron.
- (vii) Explain continuous spectrum briefly.
- (viii) Define atomic absorption spectrum giving one example.
- (ix) Give one difference between reversible and irreversible reactions.
- (x) Define pH and pOH.
- (xi) Define instantaneous rate and average rate of a reaction.
- (xii) Define order of a reaction giving one example.

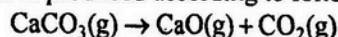
4. Write short answers of any SIX parts.

12

- (i) What is basic assumption of VSEPR theory.
- (ii) Define coordinate covalent bond. Give example.
- (iii) Define electron affinity. Give example.
- (iv) Why NH_3 is a pyramidal molecule?
- (v) What is system and surrounding?
- (vi) Define enthalpy of combustion. Give example.
- (vii) What is electrochemistry?
- (viii) What is electrolytic conduction?
- (ix) How electrochemical series is used to calculate voltage of cell? Give example.

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

5. (a) When lime stone is roasted, quicklime is produced according to following equation:



The actual yield of CaO is 2.5kg when 4.5kg of lime stone is roasted. Find its percentage yield.

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(b) Define and explain factors affecting the London forces.

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6. (a) How Dalton's law of partial pressure calculates the partial pressure of a gas?

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(b) Explain measurement of e/m value of electron.

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7. (a) Define covalent bond. Write its types with reference to polar covalent bond.

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(b) What is the first law of thermodynamics? How does it explain that $q_v = \Delta E$?

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8. (a) When 1.00 mole of steam and 1.00 mole of carbon monoxide are allowed to reach equilibrium, 33.3% of the equilibrium mixture is hydrogen. Calculate the value of K_p . State the units of K_p .

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(b) Explain how Arrhenius equation tells us the effect of temperature on the rate constant.

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9. (a) Explain the measurement of freezing point by Beckmann's freezing point apparatus.

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(b) Define electrochemical series. Write its two applications.

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