

PAPER CODE = 6486

Note : Four possible answers A, B, C and D to each question are given. The choice which you think is correct, fill that circle in front of that question with Marker or Pen ink in the answer-book. Cutting or filling two or more circles will result in zero mark in that question.

1-1	Bond energy of hydrogen (H_2) molecule is : (A) 470 KJ mol^{-1} (B) 450 KJ mol^{-1} (C) 436 KJ mol^{-1} (D) 415 KJ mol^{-1}
2	Boiling point of water at Mount Everest is : (A) 69°C (B) 78°C (C) 98°C (D) 45°C
3	An excess of aqueous silver nitrate is added to aqueous barium chloride and precipitate is removed by filtration, what are main ions in the filtrate : (A) Ag^+ and NO_3^- only (B) Ag^+ , Ba^{2+} and NO_3^- (C) Ba^{2+} and NO_3^- only (D) Ba^{2+} , NO_3^- and Cl^-
4	Number of isotopes of arsenic are : (A) 1 (B) 2 (C) 9 (D) 11
5	Photochemical reactions are usually : (A) Zero order (B) First order (C) Second order (D) Third order
6	Rutherford's model of atom failed because : (A) The atom did not have a nucleus and electrons (B) It did not account for attraction between protons and neutrons (C) It did not account for the stability of the atom (D) There is actually no space between nucleus and electrons
7	Partial pressure of oxygen in air is : (A) 110 torr (B) 112 torr (C) 114 torr (D) 159 torr
8	One mole of SO_2 contains : (A) 6.02×10^{23} atoms of oxygen (B) 18.1×10^{23} molecules of SO_2 (C) 6.02×10^{23} atoms of sulphur (D) 4 gram atoms of sulphur
9	For the given process the heat changes at constant pressure (q_p) and constant volume (q_v) are related to each other as : (A) $q_p = q_v$ (B) $q_p < q_v$ (C) $q_p > q_v$ (D) $q_p = q_v / 2$
10	The molal boiling point constant is the ratio of the elevation of boiling point to : (A) Molality (B) Molarity (C) Mole fraction of solute (D) Mole fraction of solvent
11	Which one of the following molecules has zero dipole moment : (A) H_2S (B) SO_2 (C) H_2O (D) CH_4
12	An ionic solids are characterized by : (A) Low melting point (B) Good conductivity in solid state (C) High vapour pressure (D) Solubility in polar solvents
13	Stronger is the oxidizing agent, greater is the : (A) Oxidation potential (B) Reduction potential (C) Redox potential (D) EMF of cell
14	Quantum number values of 2P orbitals are : (A) $n = 2, \ell = 1$ (B) $n = 1, \ell = 2$ (C) $n = 1, \ell = 0$ (D) $n = 2, \ell = 0$
15	Solvent extraction is an equilibrium process and is controlled by : (A) Law of mass action (B) Distribution law (C) Amount of solute used (D) Amount of solvent used
16	Rain water is : (A) Slightly acidic (B) Slightly basic (C) Neutral (D) Highly basic
17	Molarity of pure water is : (A) 45.5 (B) 55.5 (C) 65.5 (D) 75.5

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2. Write short answers to any EIGHT (8) questions :

- (i) How have 4.9 g of H_2SO_4 when completely ionized in water produces equal number of positive and negative charges but the number of positively charged ions are twice than the number of negatively charged ions?
- (ii) How has one mg of K_2CrO_4 thrice the number of ions than the number of formula units when ionized in water?
- (iii) Why do 2g of H_2 , 16g of CH_4 , 44g of CO_2 occupy separately the volume of 22.414 dm^3 although the sizes and masses of molecules of three gases are very different from each other?
- (iv) How does rate of filtration increase by using fluted filter paper?
- (v) Name the various experimental techniques which are used for purification of substances?
- (vi) Derive expression of density of gas with help of general gas equation.
- (vii) Write two characteristics of plasma state.
- (viii) Calculate value of the general gas constant (R) in unit of $\text{dm}^3 \text{ atm K}^{-1} \text{ mol}^{-1}$.
- (ix) Why do the rate of forward reaction slow down when a reversible reaction approaches the equilibrium stage?
- (x) Prove by equations that what happens when Na_2CrO_4 is added to saturated solution of $PbCrO_4$?
- (xi) Define Lowry Bronsted concept of acids and bases.
- (xii) What is the formula to calculate the percentage ionization of weak acid?

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3. Write short answers to any EIGHT (8) questions :

- (i) Why boiling point of H_2O is different at Murree hills and at Mount Everest?
- (ii) Define transition temperature. Give two examples.
- (iii) Why does ice float on water?
- (iv) What are Debye forces?
- (v) Define the term bond order with one example.
- (vi) Ionization energy is an index to the metallic nature of element. Justify.
- (vii) 75.4 pm is compromise distance between the bonded hydrogen atoms. Justify.
- (viii) Why is no bond in chemistry 100% ionic?
- (ix) Burning of candle is spontaneous process. Explain.
- (x) Define enthalpy of solution and enthalpy of neutralization.
- (xi) Define upper consolute temperature. Give two examples.
- (xii) Give two statements of Raoult's law.

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4. Write short answers to any SIX (6) questions :

- (i) State Pauli's exclusion principle and Hund's rule.
- (ii) Calculate the number of electrons in s, p, d and f sub shells from the formula and write separately.
- (iii) Write down any two postulate of Plank's quantum theory.
- (iv) Why is e/m value of the cathode rays just equal to that of electron?

(Turn Over)

Objective
Paper Code
6481

Intermediate Part First (New Scheme)
CHEMISTRY (Objective)
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 number of moles of hydrogen atoms in 92g alcohol (C_2H_5OH) are:	5 moles	6 moles	10 moles	12 moles
2	The number of moles of CO_2 which contain 8.0g of oxygen:	1.50	1.0	0.50	0.25
3	The comparative rates at which the solute move in paper chromatography depend on:	Size of paper	R_f values	Temperature	Size of chromatographic tank
4	The gases show more deviation at:	Low temperature and low pressure	High temperature and low pressure	High temperature and high pressure	Low temperature and high pressure
5	The liquid having highest boiling point is:	Hydrofluoric acid	Water	Hydrogen sulphide	Ammonia
6	Which impurity makes the shape of sodium chloride crystal needle like:	$MgSO_4$	Urea	Glucose	$MgCO_3$
7	When one beta (β) particle is emitted from the nucleus of an atom its:	Atomic number increases by 1	Atomic number decreases by 1	Atomic mass increases by 1	Atomic mass decreases by 1
8	The charge on proton is:	$1.6022 \times 10^{-11}C$	$1.6022 \times 10^{11}C$	$1.6022 \times 10^{-19}C$	$1.6022 \times 10^{19}C$
9	In nitrogen molecule (N_2), each nitrogen atom contributes in sharing for formation of bond:	One electron	Two electrons	Three electrons	Four electrons
10	Which one has highest value of ionization energy:	Be	C	O	F
11	The pressure of oxygen in bomb calorimeter is:	10 atm.	15 atm.	20 atm.	25 atm.
12	For which system does the equilibrium constant, K_c has units of $(\text{concentration})^{-1}$:	A	$N_2 + 3H_2 \rightleftharpoons 2NH_3$	C	$2NO_2 \rightleftharpoons N_2O_4$
		B	$H_2 + I_2 \rightleftharpoons 2HI$	D	$PCl_5 \rightleftharpoons PCl_3 + Cl_2$
13	Which one affects the value of K_c ?	Concentration	Temperature	Pressure	Catalyst
14	One molar solution of glucose ($C_6H_{12}O_6$) contains the amount of solute in 500cm^3 solution:	180g	90g	45g	270g
15	Molarity of pure water is:	1	18	55.5	6
16	The oxidation state of oxygen in KO_2 is:	-1	-2	$-\frac{1}{2}$	+2
17	The order of reaction for the reaction $2N_2O_5 \rightarrow 2N_2O_4 + O_2$ is:	Zero order	First order	Second order	Third order

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