Chemistry	(C)	L.K.No. 1531	Paper Code No. 6485
Paper I	(Objective Type)	Inter (Ist – A – Exam 2024)	
Time :	20 Minutes	Inter (Part - I)	Group Ist
Marks :	17	Session (2022 – 24) & (2023 – 25)	

Note : Four choices A , B , C ,D to each question are given. Which choice is correct fill that circle in front of that Question No. on the Objective Bubble Sheet. Use Marker or Pen to fill the circles. Cutting or filling two or more circles will result in Zero Mark in that Question.

Q.No.1 (1)	Solvent Extraction is an Equilibrium Process and is controlled by : (A) Law of Mass Action (B) The amount of Solvent used (C) Distribution Law (D) The amount of Solute
(2)	The Volume occupied by 1 . 4 g of N_2 at S.T.P is : (A) 2 . 24 dm^3 (B) 22 . 4 dm^3 (C) 1 . 12 dm^3 (D) 112 cm^3
(3)	The mass of 1 Mole of Electron is : (A) 1 . 008 mg (B) 0 . 55 mg (C) 0 . 184 mg (D) 1 . 673 mg
(4)	The Comparative rate at which the solute moves in Paper Chromatography depends on : (A) The size of Paper (B) R_f values of solutes (C) Temperature of the experiment (D) Size of the Chromatographic tank used
(5)	In order to mention Boiling Point of Water at 110°C , the External Pressure should be : (A) Between 760 torr and 1200 torr (B) Between 200 torr and 760 torr (C) 765 torr (D) Any value of Pressure
(6)	A real gas obeying Van der Waals equation will resemble ideal gas if : (A) Both ' a ' and ' b ' are large (B) Both ' a ' and ' b ' are small (C) ' a ' is small and ' b ' is large (D) ' a ' is large and ' b ' is small
(7)	Pressure remaining constant , at which temperature , the volume of a gas will become twice of what it is at 0°C : (A) 546° C (B) 200° C (C) 546 K (D) 273 K
(8)	Ionic Solids are characterized by : (A) Low Boiling Point (B) Good Conductivity in Solid State (C) High Vapour Pressure (D) Solubility in Polar Solvents
(9)	The nature of Positive rays depend upon : (A) The Nature of the Electrode (B) The Nature of the Discharge Tube (C) The Nature of the residual Gas (D) All of the above
(10)	Which of the Hydrogen Halides has highest Percentage of Ionic Character : (A) HCl (B) HBr (C) HF (D) HI
(11)	The number of Bonds in Nitrogen Molecule : (A) One Sigma and One Pi (B) One Sigma and two Pi (C) Three Sigma only (D) Two Sigma and One Pi
(12)	Quantum number values for 2p Orbitals are : (A) $n = 2, \ell = 1$ (B) $n = 1, \ell = 2$ (C) $n = 1, \ell = 0$ (D) $n = 2, \ell = 0$
(13)	18 g glucose is dissolved in 90 g of H_2O . The relative lowering of Vapour Pressure is equal to : (A) $\frac{1}{5}$ (B) 5 . 1 (C) $\frac{1}{51}$ (D) 6
(14)	The pH of 10^{-3} mol dm^{-3} of an Aqueous Solution of H_2SO_4 is : (A) 3 (B) 2 . 7 (C) 2 . 0 (D) 1 . 5
(15)	If an endothermic reaction is allowed to take place very rapidly in the air , the temperature of the surrounding air : (A) Remains Constant (B) Increases (C) Remains Unchanged (D) Decreases
(16)	The Cathodic Reaction in the Electrolysis of dil . H_2SO_4 with Pt Electrode is : (A) Reduction (B) Oxidation (C) Both Oxidation and Reduction (D) Neither Oxidation nor Reduction
(17)	In Zero Order Reaction , the rate is independent of : (A) Temperature of Reaction (B) Concentration of Reactants (C) Concentration of Products (D) None of these

B

Roll No.	1531 - 15000	Inter (Part – I)	Session (2022 – 24) & (2023 – 25)
Chemistry (Subjective)	Inter (Ist – A – Exam – 2024) BWP-1-24	Group Ist	Time 2 : 40 Hours Marks : 68

Note : It is compulsory to attempt any (8 – 8) Parts each from Q.No. 2, Q.No.3 and attempt any (6) Parts from Q.No.4. Attempt any (3) Questions from Part – II. Write same Question No. and its Part No. as given in the Question Paper.

Make Diagram where necessary.

Part - I

22 x 2 = 44

Q.No.2	(i)	Why some Elements have Atomic Masses in fraction?		
	(ii)	Define Pressure . Give Units of Pressure.		
	(iii)	Define Atomicity and Isotopy.	(iv)	Differentiate between Diffusion and Effusion.
	(v)	Why Sintered Glass Crucible is better than Gooch Crucible?	(vi)	Define Crystallization. Write down only two names of its steps.
	(vii)	What are two causes of deviation from Ideality of Gases?	(viii)	Write down major steps involved in Complete Quantitative Analysis.
	(ix)	How Partial Pressure of Dry Gas can be calculated by Dalton's Law of Partial Pressure?	(x)	How the value of K_C Predict the Extent of Reaction ? Give examples.
	(xi)	How would you maximize the yield of Ammonia in Haber 's Process ?	(xii)	Justify the effect of Catalyst on Equilibrium Constant.
Q.No.3	(i)	Why Boiling Point of Water is different at Murree Hills and Mount Everest?	(ii)	One feels sense of Cooling under the fan after bath. Why?
	(iii)	Define Allotropy. Give example	(iv)	Cleavage itself is an Isotropic behaviour why?
	(v)	State Pauli 's Exclusion Principle.	(vi)	Define ppm. Write Formula.
	(vii)	Why Boiling point of Solvent increases by adding Solute?	(viii)	Define Order of Reaction. Give example.
	(ix)	Write Electronic Configuration of Chromium (At. No . 24) .	(x)	What happens when the Neutron Decay?
	(xi)	The e/m of positive rays is less than Cathode Rays . Justify.	(xii)	A Catalyst is Specific in its action. Justify with example
Q.No.4	(i)	What is trend of Variation for Electron Affinity in the Periodic Table?		
	(ii)	Predict the Geometry of Molecule H_2O by VSEPR Theory.		
	(iii)	Why Sigma Bond is stronger than Pi Bond ?		
	(iv)	Define Dipole Moment and write its Unit.		
	(v)	Justify that $\triangle E = q_v$.		
	(vi)	Explain the term Enthalpy . Also write its formula.		
	(vii)	Define Enthalpy of Atomization with an example.		
	(viii)	Calculate Oxidation No. of Cr in $K_2Cr_2O_7$		
	(ix)	Lead Accumulator is a Chargeable Battery. Comment on it.		

(Part – II)

3 x 8 = 24

Q.No.5	(a)	What are Isotopes ? Discuss Relative Abundance of Isotopes.	(4)
	(b)	Describe the given properties of Crystalline Solids : (i) Anisotropy (ii) Polymorphism	(4)
Q.No.6	(a)	There is a mixture of Hydrogen , Helium and Methane occupying a Vessel of Volume 13 dm^3 at 37 °C and Pressure of 1 atm . The Masses of H_2 and He are 0 . 8 g and 0 . 12 g respectively . Calculate the Partial Pressures in torr of each gas in the mixture .	(4)
	(b)	State and explain Heisenberg 's Uncertainty Principle .	(4)
Q.No.7	(a)	Explain effect of Bonding on following properties of Compounds : (i) Isomerism (ii) Reaction Kinetics	(4)
	(b)	$N_{2(g)}$ and $H_{2(g)}$ combine to give $NH_{3(g)}$. The value of K_c in this reaction at 500°C is 6.02×10^{-2} . Calculate the value of K_p for this Reaction.	(4)
Q.No.8	(a)	Define Internal Energy and Enthalpy. Prove $\triangle H = q_p$	(4)
	(b)	Define Electrochemical Series. Explain the following applications in detail : (i) Prediction of the Feasibility of a Chemical Reaction (ii) Calculation of emf of the Cell	(4)
Q.No.9	(a)	What are Continuous and Discontinuous Solubility Curves ? Give examples.	(4)
	(b)	What are Enzymes ? Give three Characteristics of Enzyme Catalysis.	(4)

Chemistry	(C)	E.R.No.	
Paper I	(Objective Type)	Inter (Ist – A – Exam 2024)	
Time :	20 Minutes	Inter (Part - I)	(Group 2nd)
Marks :	17	Session (2022 – 24) & (2023 – 25)	BWP-2-24

Note : Four choices A , B , C ,D to each question are given. Which choice is correct fill that circle in front of that Question No. on the Objective Bubble Sheet. Use Marker or Pen to fill the circles. Cutting or filling two or more circles will result in Zero Mark in that Question.

Q.No.1 (1)	Number of Crucibles are : (A) 2 (B) 3 (C) 4 (D) 5
(2)	Which of the following is Water absorber which is used in Combustion Analysis : (A) $MgCl_2$ (B) $Mg(ClO_4)_2$ (C) $MgBr_2$ (D) Mg_3N_2
(3)	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 SO_2
(4)	Common ways of Carrying out Paper Chromatography are : (A) 2 (B) 4 (C) 3 (D) 5
(5)	Atmospheric Pressure at Mount Everest is : (A) 123 torr (B) 223 torr (C) 323 torr (D) 423 torr
(6)	If Absolute temperature of a gas is doubled and pressure is reduced to one half , the volume of gas will be : (A) Remain Unchanged (B) Reduce to 1 / 4 (C) Increase Four Times (D) Be Doubled
(7)	Value of Absolute Zero is : (A) $-373.16^{\circ}C$ (B) $-273.16^{\circ}C$ (C) $273.16^{\circ}C$ (D) $373.16^{\circ}C$
(8)	Which of the given is a Pseudo Solid : (A) CaF_2 (B) Glass (C) NaBr (D) NH_4Br
(9)	Which of the given Molecule has Linear Geometry : (A) $BeCl_2$ (B) H_2O (C) H_2S (D) $SnCl_2$
(10)	Quantum Number Values for 2p Orbitals are : (A) $n = 2, \ell = 1$ (B) $n = 1, \ell = 1$ (C) $n = 2, \ell = 0$ (D) $n = 1, \ell = 3$
(11)	When Cathode rays strike on Alumina then colour of glow is : (A) Green (B) Red (C) Blue (D) Orange
(12)	Bond Order of N_2 Molecule is : (A) 0 (B) 1 (C) 2 (D) 3
(13)	The pH of 10^{-3} mol dm^{-3} of aqueous solution of H_2SO_4 is : (A) 2.7 (B) 3.0 (C) 1.5 (D) 2.0
(14)	For Decomposition of Ozone , K_c at $25^{\circ}C$ is : (A) 10^{55} (B) 10^{50} (C) 10^{53} (D) 10^{57}
(15)	For the Reaction : $NaOH + HCl \longrightarrow NaCl + H_2O$ the change in Enthalpy is called : (A) Heat of Reaction (B) Heat of Formation (C) Heat of Neutralization (D) Heat of Combustion
(16)	Electrolyte of Lead Accumulator is : (A) 30 % H_2SO_4 (B) 20 % HCl (C) 30 % HNO_3 (D) 5 % HI
(17)	Disintegration of radioactive $^{235}_{92}U$ has Half Life of : (A) 700 Million Years (B) 710 Million Years (C) 700 Billion Years (D) 710 Billion Years

Roll No. (Group 2nd)	1532- 15000	Inter (Part – I)	Session (2022 – 24) & (2023 – 25)
Chemistry (Subjective)	Inter (Ist – A – Exam – 2024)		Time 2 : 40 Hours Marks : 68

Note : It is compulsory to attempt any (8 – 8) Parts each from Q.No. 2, Q.No.3 and attempt any (6) Parts from Q.No.4. Attempt any (3) Questions from Part – II. Write same Question No. and its Part No. as given in the Question Paper.

BWP-2-24

Make Diagram where necessary. | Part - I | 22 x 2 = 44

Q.No.2	(i)	Calculate the Mass in grams of 2 . 74 Moles of $KMnO_4$.		
	(ii)	What are Molecular Ions ? How these can be generated ?		
	(iii)	When two moles (4 g) of Hydrogen are made to react with two moles (64 g) of Oxygen, which will be the Limiting Reactant ? Explain	(iv)	What is Fluted Filter Paper? Give its advantage over Ordinary Filter Paper Filtration.
	(v)	Differentiate between Adsorption and Partition Chromatography.	(vi)	Define Sublimation. Name any two substances that can be sublimed.
	(vii)	Define Pressure . Give Units of Pressure.	(viii)	Give any two applications of Plasma.
	(ix)	Helium Gas is Ideal at room temperature while $Cl_{2(g)}$ is Non-ideal . Explain it.	(x)	Calculate the pH of 1 . 0 mol dm^{-3} of H2X , which is only 50% dissociated.
	(xi)	Write down K_c Units for the following reaction : $4NH_3(g) + 5O_2(g) \rightleftharpoons 4NO(g) + 6H_2O(g)$	(xii)	Dissociation Constant for water is temperature dependent . Explain it.
Q.No.3	(i)	Define Allotropy. Give example	(ii)	The e/m value of positive rays is different for different gases used in gas discharge tube but those of electrons remain same . Why?
	(iii)	Why it is necessary to decrease the pressure in discharge tube to get Cathode rays?	(iv)	Diamond is hard and an Electrical Insulator. Justify.
	(v)	Transition temperature is shown by Elements having Allotropic forms and by Compounds showing Polymorphism. Why?	(vi)	Boiling Point of Branched Chain Alkanes are lower than corresponding Straight Chain Alkanes, why?
	(vii)	Why Ice floats on Water?	(viii)	How can de-Broglie equation be derived?
	(ix)	Why Concentration in terms of Molality is independent of temperature but Molarity depends?	(x)	Why do Boiling Points of Solvents increase due to presence of solute?
	(xi)	What is meant by Half-Life Period? Give one example.	(xii)	How does light affect the rate of a Chemical Reaction?
Q.No.4	(i)	Why Electron Affinity of Flourine is less than that of Chlorine?		
	(ii)	Write down names of factors affecting bond strength.		
	(iii)	Bond Distance is the Compromise distance between two Atoms. Explain with reason .		
	(iv)	How Electronegativity difference predict the nature of Bond?		
	(v)	Define the given terms : (i) Thermochemistry (ii) State Function		
	(vi)	Define the term Lattice Energy. Give example.		
	(vii)	Why it is necessary to mention the physical states of reactants and products in Thermochemical Reaction?		
	(viii)	Differentiate between Electronic Conduction and Electrolytic Conduction.		
	(ix)	How extraction of Na can be done by Electrolysis of Molten NaCl?		

(Part – II) | 3 x 8 = 24

Q.No.5	(a)	What is Combustion Analysis? How the percentages of various elements present in an Organic Compound are determined?	(4)
	(b)	What are Liquid Crystals? Give their six uses in daily life.	(4)
Q.No.6	(a)	250 cm^3 of Hydrogen is Cooled from 127°C to –27 °C by maintaining the Pressure constant. Calculate the new Volume of the gas at low Temperature.	(4)
	(b)	Describe J.J Thomson's Experiment for the measurement of e/m value of electron with diagram.	(4)
Q.No.7	(a)	Describe Postulates of Valence Shell Electron Pair Repulsion Theory (VSEPR).	(4)
	(b)	Calculate the pH of a Buffer Solution in which 0 . 11 Molar Concentration of CH_3COONa and 0 . 09 Molar Acetic Acid Solutions are present. (K_a for CH_3COOH is 1 . 85 x 10^{-5})	(4)
Q.No.8	(a)	How Enthalpy of a reaction be measured by using Glass Calorimeter?	(4)
	(b)	What is Lead Accumulator ? Describe discharging of Lead Accumulator.	(4)
Q.No.9	(a)	How is depression in Freezing Point measured by Beckmann's Apparatus?	(4)
	(b)	How does the Arrhenius Equation help us to calculate Energy of Activation of a Reaction?	(4)

05-05-2024