Chemistry	(B)	L.K.No. 1110	Paper Code No. 6484
Paper I	(Objective Type)	Inter – A – 2022	(Group 2nd)
Time :	20 Minutes	Inter (Part - I)	
Marks :	17	Session (2020-22) to (2021 – 23)	

B

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

BWP-G2-22

Q.No.1 (1)	The bond order for He_2 is : (A) 0 (B) 1 (C) 2 (D) 3
(2)	Orbitals having same energy are called : (A) Hybrid Orbitals (B) Valence Orbitals (C) Degenerate Orbitals (D) d - Orbitals
(3)	At Murree Hills , water boils at : (A) $98^{\circ}C$ (B) $100^{\circ}C$ (C) $0^{\circ}C$ (D) $50^{\circ}C$
(4)	Number of Molecules in one dm^3 of water is close to : (A) $\frac{6.02}{22.4}$ (B) $\frac{12.04}{22.4}$ (C) $\frac{18}{22.4} \times 10^{23}$ (D) $55.6 \times 6.02 \times 10^{23}$
(5)	Drying Agent used in Desiccator is : (A) NH_4Cl (B) AgCl (C) NaCl (D) $CaCl_2$
(6)	The largest number of Molecules are present in : (A) 3.6 g of H_2O (B) 4.8 g of C_2H_5OH (C) 2.8 g of CO (D) 5.4 g of N_2O_5
(7)	The rate of Reaction : (A) Increases as the reaction proceeds (B) Remain the same as the reaction proceeds (C) Decreases as the reaction proceeds (D) May decrease or increase as the reaction proceeds
(8)	Stronger the Oxidizing Agent , greater is the : (A) Oxidation Potential (B) Reduction Potential (C) Redox Potential (D) EMF of Cell
(9)	The Molal Boiling Point Constant is the ratio of the Elevation in Boiling Point to : (A) Molarity (B) Molality (C) Mole Fraction of Solvent (D) Mole Fraction of Solute
(10)	The pH of 10^{-3} mol dm^{-3} of an aqueous solution of H_2SO_4 is : (A) 3.0 (B) 2.7 (C) 2.0 (D) 1.5
(11)	Calorie is equivalent to : (A) 0.4184 J (B) 41.84 J (C) 4.184 J (D) 418.4 J
(12)	Which of the Hydrogen Halides has the highest percentage of Ionic Character : (A) HCl (B) HBr (C) HF (D) HI
(13)	Quantum Number Values for 2p Orbitals are : (A) $n = 2, \ell = 1$ (B) $n = 1, \ell = 2$ (C) $n = 1, \ell = 0$ (D) $n = 2, \ell = 0$
(14)	Which of the given is a Pseudo Solid : (A) CaF_2 (B) Glass (C) NaCl (D) All these
(15)	The molar volume of CO_2 is maximum at : (A) STP (B) $127^{\circ}C$ and 1 atm (C) $0^{\circ}C$ and 2 atm (D) $273^{\circ}C$ and 2 atm
(16)	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
(17)	The mass of one mole of electrons is : (A) 1.008 mg (B) 0.55 mg (C) 0.184 mg (D) 1.673 mg

Roll No.	1110 - 20000	Session (2020 –22) to (2021 – 23)	Inter (Part – I)
Chemistry (Subjective)	Inter – A – 2022	Time 2 : 40 Hours Marks : 68	Group 2nd

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 – G2 – 22

Make Diagram where necessary.

Part - I

22 x 2 = 44

Q.No.2	(i)	180 g of Glucose and 342 g of Sucrose have the same number of Molecules. Justify it.		
	(ii)	No individual Neon Atom in the sample of the element has a mass of 20 . 18 amu. Give reason.		
	(iii)	Why is the Actual Yield mostly less than the Theoretical Yield ?		
	(iv)	What is Retardation Factor (R_f) ? Why it has no unit ?		
	(v)	How are undesirable colours removed during crystallization ?	(vi)	Pilots feel uncomfortable breathing at higher altitudes, why ?
	(vii)	What is Solvent Extraction ?	(viii)	Define Diffusion. Give example.
	(ix)	What is Critical Temperature (Tc) ? Give an example.	(x)	How is basic Buffer Solution prepared ? Give an example.
	(xi)	What is Common Ion Effect ? Give an example	(xii)	Define pH and pOH .
Q.No.3	(i)	How Aquatic Animals owe their lives under blanket of Ice in Winter ?		
	(ii)	Justify Earthenware Vessels keep water cool .		
	(iii)	Ionic Crystals are highly brittle . Justify it.		
	(iv)	Why Electrical Conductivity of metal decreases with rise of temperature ?		
	(v)	Why it is necessary to decrease pressure in a discharge tube to get Cathode Rays ?		
	(vi)	Give any two properties of Neutron.		
	(vii)	Define Hund's Rule with an example.		
	(viii)	Differentiate between Zeeman Effect and Stark Effect.		
	(ix)	In summer, the antifreeze solution protect the liquid from boiling over. Give reason.		
	(x)	Why in Hydrates Cation attracts more water molecules than anion ?		
	(xi)	The radioactive decay is always First Order Reaction. Justify it.		
	(xii)	Sum of Co-efficients of Balanced Equation is not necessarily important to give order of reaction. Explain.		
Q.No.4	(i)	What is Octet Rule ? Give two examples in which Octet Rule is not obeyed ?		
	(ii)	Size of Anion is larger than its Neutral Atom , why ?		
	(iii)	What is Ionization Energy ? Give units.		
	(iv)	What is Ammonium Ion ? How it is formed ?		
	(v)	What is the difference between Internal Energy and Enthalpy ?		
	(vi)	What is Hess's Law of Constant Heat Summation ?		
	(vii)	Burning of Candle is spontaneous process , why ?		
	(viii)	Calculate the Oxidation Number of Chromium in $K_2Cr_2O_7$.		
	(ix)	What is Metallic Conduction ? Give example.		

(Part – II)

3 x 8 = 24

Q.No.5	(a)	What is a Limiting Reactant ? How does it control the quantity of product in a chemical reaction ? Give two examples.	(4)
	(b)	Explain the Millikan's Oil Drop Experiment to determine the charge of an Electron.	(4)
Q.No.6	(a)	250 cm^3 of the sample of Hydrogen Effuses four times as rapidly as 250 cm^3 of an unknown gas. Calculate the Molar Mass of Unknown Gas.	(4)
	(b)	Explain the measurement of Electrode Potential of Zinc (Zn). 3 + 1 =	(4)
Q.No.7	(a)	Explain AB_3 Type with no lone pair of electron and with multiple bond according to VSEPR Theory.	(4)
	(b)	What do you mean by Enthalpy ? Also prove that $\Delta H = q_p$ 1 + 3 =	(4)
Q.No.8	(a)	How Boiling Point and External Pressure are related ? Discuss applications also.	(4)
	(b)	The solubility product of Ag_2CrO_4 is 2 . 6 x 10^{-2} at 25°C . Calculate solubility of the compound.	(4)
Q.No.9	(a)	What do you mean by Elevation of Boiling Point ? Explain Landsberger's Method for its measurement. 1 + 3 =	(4)
	(b)	Discuss Half Life Method and method of large Excess to find order of a reaction. 2 + 2 =	(4)

Chemistry	(D)	L.K.No. 1109	Paper Code No. 6487
Paper I	(Objective Type)	Inter – A – 2022	(Group Ist)
Time :	20 Minutes	Inter (Part - I)	
Marks :	17	Session (2020 - 22) to (2021 – 23)	

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

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Q.No.1 (1)	The mass of one mole of electron is : (A) 1 . 008 mg (B) 0 . 55 mg (C) 0 . 184 mg (D) 1 . 67 mg
(2)	Solvent Extraction is an equilibrium process and it is controlled by : (A) Law of Mass Action (B) Amount of Solvent used (C) Distribution Law (D) The amount of Solute
(3)	During the process of Crystallization, the hot saturated solution : (A) Is Cooled very slowly to get large sized crystals (B) Is Cooled at a moderate rate to get medium sized crystals (C) Is Evaporated to get the crystals of the product (D) Is mixed with an immiscible liquid to get the pure crystals of product
(4)	The number of moles of CO_2 which contains 8 . 0 g of Oxygen : (A) 0 . 25 (B) 0 . 50 (C) 1 . 0 (D) 1 . 50
(5)	Which of the following will have the same number of Molecules : (A) 280 cm^3 of CO_2 and 280 cm^3 of N_2O (B) 11 . 2 dm^3 of CO_2 and 32 g of O_2 (C) 44 g of CO_2 and 11 . 2 dm^3 of CO (D) 28 g of N_2 and 5 . 6 dm^3 of Oxygen
(6)	When water freezes at 0^oC , its density decreases due to : (A) Cubic Structure of Ice (B) Empty Spaces present in the structure of Ice (C) Change of Bond Length (D) Change of Bond Angles
(7)	The molecule of CO_2 in Dry Ice form the : (A) Ionic Crystals (B) Covalent Crystals (C) Molecular Crystals (D) All these
(8)	Equal Masses of Methane and Oxygen are mixed in an empty container at 25^oC. The fraction of total pressure exerted by Oxygen is : (A) $\frac{1}{3}$ (B) $\frac{8}{9}$ (C) $\frac{1}{9}$ (D) $\frac{16}{17}$
(9)	The nature of the positive rays depends on : (A) The nature of the electrode (B) The nature of the discharge tube (C) The nature of the residual gas (D) All these
(10)	The Paramagnetic Property of O_2 is well explained on the basis of : (A) VSEPR (B) VBT (Valence Bond Theory) (C) MOT (Molecular Orbital Theory) (D) None of these
(11)	The number of Bonds in Nitrogen Molecule is : (A) One σ and one π (B) One σ and two π (C) Three Sigma Only (D) Two σ and one π
(12)	The wave number of the light emitted by a source is $2 \times 10^6 m^{-1}$. The Wavelength of this light will be : (A) 500 nm (B) 500 m (C) 200 nm (D) 5×10^7 m
(13)	Calorie is equivalent to : (A) 0 . 4184 J (B) 41 . 84 J (C) 4 . 184 J (D) 418 . 4 J
(14)	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) None of these
(15)	The molal boiling point constant is the ratio of the elevation in boiling point to : (A) Molarity (B) Molality (C) Mole Fraction of Solvent (D) Mole Fraction of Solute
(16)	The pH of 10^{-3} mol dm^{-3} of an aqueous solution of H_2SO_4 is : (A) 3 . 0 (B) 2 . 7 (C) 2 . 0 (D) 1 . 5
(17)	The rate of Reaction : (A) Increase as reaction proceed (B) Decrease as reaction proceed (C) Remain the same as the reaction proceed (D) None of these

Roll No.	1109 - /8000	Session (2020 – 22) to (2021 – 23)	Inter (Part – I)
Chemistry (Subjective)	**Inter – A – 2022**	Time 2 : 40 Hours Marks : 68	**Group Ist**

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.

5

Make Diagram where necessary.

Part - I BWP-G1-22 **22 x 2 = 44**

Q.No.2	(i)	What is the function of Magnetic Field in Mass Spectrometer ?		
	(ii)	Differentiate between Molecular and Empirical Formula.		
	(iii)	Define Gram Atom with one example.	(iv)	Define R_f . What are its units ?
	(v)	State Boyl's Law . Also write its mathematical form.	(vi)	How Saturated Solution is prepared for Crystallization ?
	(vii)	How is Plasma formed ?	(viii)	Describe Sublimation Process.
	(ix)	Differentiate between Diffusion and Effusion.	(x)	What is meant by Ionic Product of Water ?
	(xi)	How Acidic Buffer can be prepared ?	(xii)	Define pK_a and pK_b
Q.No.3	(i)	Define Isomorphism. Give one example.	(ii)	One feels sense of cooling under the fan after bath . Give the reason.
	(iii)	What is Aufbau Principle ?	(iv)	What are Zeeman Effect and Stark Effect?
	(v)	What is Spin Quantum Number ? Give its two values.	(vi)	What do you mean by Inhibitor ? Give an example.
	(vii)	What are Dipole Induced Dipole Forces ?	(viii)	Evaluate the Mass of Electron.
	(ix)	What is Fractional Crystallization ? How is it useful ?	(x)	Define Activation Energy and Activated Complex.
	(xi)	Calculate the Mass of Urea in 100 g of H_2O in 0 . 3 Molal Solution.		
	(xii)	How can the Vacuum Distillation be employed to avoid decomposition of a sensitive liquid ?		
Q.No.4	(i)	Why the Second Ionization Energy is greater than First Ionization Energy ?		
	(ii)	Define Octet Rule. Give an example.		
	(iii)	Why CO_2 and CS_2 have linear structure ?		
	(iv)	Throw light on the term Bond Order.		
	(v)	Define Enthalpy of Formation (ΔH^0_f) and give an example.		
	(vi)	Define Exothermic Reaction by giving an example.		
	(vii)	What do you know about State Function ?		
	(viii)	Calculate the Oxidation Number of Manganese in $KMnO_4$.		
	(ix)	What is the function of Salt Bridge ?		

(Part – II) **3 x 8 = 24**

Q.No.5	(a)	Explain Isotope with their relative abundance.	1 + 1 + 1 + 1 =	(4)
	(b)	Explain Rutherford's Model of Atom . Give its defects.	2 + 2 =	(4)
Q.No.6	(a)	Calculate the mass of 1 dm^3 of NH_3 gas at 30 ^oC and 1000 mm Hg pressure, considering that NH_3 is behaving ideally.		(4)
	(b)	Briefly explain the working of Galvanic Cell.		(4)
Q.No.7	(a)	Explain the Geometry of Ethene ($CH_2 = CH_2$) using Hybridization.	3 + 1 =	(4)
	(b)	State and explain First Law of Thermodynamics.	1 + 3 =	(4)
Q.No.8	(a)	How Vapor Pressure is measured by Manometric Method ?		(4)
	(b)	The Solubility of PbF_2 at 25 ^oC is 0 . 64 g / dm^{-3} . Calculate Ksp of PbF_2 .		(4)
Q.No.9	(a)	How will you define Raoult's Law in three different forms with Mathematical Expression?		(4)
	(b)	What is Catalysis ? Give its types with examples.		(4)

28-06-2022