B

Chemistry	(B)	L.K.No. 1110	Paper Code No. 6484
Paper I	(Objective Type)	Inter – A – 2021	(Group 2nd)
Time :	20 Minutes	Inter (Part - I)	BWP-42-24
Marks :	17	Session (2017 -19) to (2020 – 22)	

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.

Q.No.	
1	In Zero Order Reaction , the rate is independent of : (A) Temperature of Reaction (B) Concentration of Reactants (C) Concentration of Products (D) Pressure of Reaction
2	If the Salt Bridge is not used between two half cells , then the Voltage : (A) Decreases Rapidly (B) Decreases Slowly (C) Does not change (D) Drops to Zero
3	18 g Glucose is dissolved in 90 g of water. The relative lowering of Vapour Pressure is equal to : (A) $\frac{1}{51}$ (B) 5.1 (C) $\frac{1}{5}$ (D) 6
4	The pH of 10^{-3} mole dm^{-3} of an aqueous solution of H_2SO_4 is : (A) 3.0 (B) 2.7 (C) 2.0 (D) 1.5
5	For which system does the equilibrium Constant K_c has units of (concentration)$^{-1}$? : (A) $N_2(g) + 3H_2(g) \rightleftharpoons 2NH_3(g)$ (B) $2NO_2(g) \rightleftharpoons N_2O_4(g)$ (C) $H_2(g) + I_2(g) \rightleftharpoons 2HI(g)$ (D) $2HF(g) \rightleftharpoons H_2(g) + F_2(g)$
6	One Calorie is equivalent to : (A) 0.4184 J (B) 4.184 J (C) 41.84 J (D) 418.4 J
7	Type of Hybridization in H_2O is : (A) sp (B) sp^2 (C) sp^3 (D) dsp^2
8	Which of the Hydrogen Halide has the highest percentage of Ionic Character : (A) HF (B) HCl (C) HBr (D) HI
9	The value of Quantum Number ℓ = 0 , 1 , 2 , 3 , ------ (n – 1) is for : (A) Principal Quantum Number (B) Azimuthal Quantum Number (C) Magnetic Quantum Number (D) Spin Quantum Number
10	The Velocity of Photon is : (A) Independent of its Wavelength (B) Depends on its Wavelength (C) Equal to square of its Amplitude (D) Depends on its source
11	The Crystal System of Sugar is : (A) Monoclinic (B) Cubic (C) Hexagonal (D) Triclinic
12	London Dispersion Forces are the only forces present among the : (A) Molecules of Water in Liquid State (B) Atoms of Helium in Gaseous State at high temperature (C) Molecules of Solid Iodine (D) Molecules of Hydrogen Chloride Gas
13	The value of R in SI Units System is : (A) 8.3143 Nm K^{-1} $mole^{-1}$ (B) 0.0821 dm^3 atm K^{-1} $mole^{-1}$ (C) 8.3143 dm^3 atm K^{-1} $mole^{-1}$ (D) 0.0821 Nm K^{-1} $mole^{-1}$
14	Number of Molecules in One dm^3 of water is close to : (A) $\frac{6.02}{22.4} \times 10^{23}$ (B) $\frac{12.04}{22.4} \times 10^{23}$ (C) $\frac{18}{22.4} \times 10^{23}$ (D) $55.6 \times 6.02 \times 10^{23}$
15	Solvent Extraction method is a particularly useful technique for separation when the product to be separated is : (A) Non – Volatile or Thermally Unstable (B) Volatile or Thermally Stable (C) Non – Volatile or Thermally Stable (D) Volatile or Thermally Unstable
16	Number of Isotopes of Nickel is : (A) 2 (B) 3 (C) 4 (D) 5
17	27g of Al will react completely with how much mass of O_2 to produce Al_2O_3 : (A) 8 g of Oxygen (B) 16 g of Oxygen (C) 32 g of Oxygen (D) 24 g of Oxygen

B

Roll No.	1110 - 14000	Session (2017 –19) to (2020 – 22)	Inter (Part – I)
Chemistry (Subjective)	Inter – A – 2021	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.

BIOP-42-21

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

Q.No.2	(i)	Why Actual Yield is less than Theoretical Yield ?		
	(ii)	Define Adsorption Chromatography and Partition Chromatography.		
	(iii)	What is Gram Atom and Gram Molecule ?	(iv)	What are Monoisotopic Elements?
	(v)	What is R_f Value ?	(vi)	What is Fractional Crystallization ?
	(vii)	Why Pilots feel Uncomfortable Breathing ?	(viii)	What is Natural and Artificial Plasma?
	(ix)	Derive Charles's Law from KMT.	(x)	What are Continuous Solubility Curves?
	(xi)	What is Absolute or Kelvin Scale of Temperature?	(xii)	Name four Colligative properties of Solutions.
Q.No.3	(i)	How concept of Hydrogen Bonding helps to explain structure of Ice ?		
	(ii)	What are Amorphous Solids ? Give two suitable examples.		
	(iii)	Write axes and angles of Tetragonal and Monoclinic Crystal System.		
	(iv)	Define Dipole Dipole Forces and London Dispersion Forces.		
	(v)	Write any four properties of Cathode Rays.		
	(vi)	Give reason for the production of Positive Rays.		
	(vii)	Write down defects of Rutherford's Model of an Atom.		
	(viii)	Differentiate between Atomic Emission Spectrum and Atomic Absorption Spectrum.		
	(ix)	How value of Equilibrium Constant (K_c) helps to predict extent of a reaction ?		
	(x)	State Le – Chatelier's Principle.		
	(xi)	Define Instantaneous and Average Rate of Reaction.		
	(xii)	Write down concept of Activation Energy and Activated Complex.		
Q.No.4	(i)	Cationic Radius is smaller than that of its Parent Atomic Radius why ?		
	(ii)	Draw the structure of H_2O according to VSEPR Theory.		
	(iii)	Define Enthalpy of Neutralization with example.		
	(iv)	Calculate the Oxidation Numbers of the elements underlined : (a) $Na_2\underline{P}O_4$ (b) $H\underline{P}O_3$		
	(v)	Why SHE acts as Cathode when connected with Z_n Electrode but SHE acts as Anode when connected with Cu ? Justify.		
	(vi)	State Hess's Law of Constant Heat Summation.		
	(vii)	π Bonds are more diffused than σ Bonds , justify.		
	(viii)	Write down the function of Salt Bridge.		
	(ix)	Define Ionic Bond with an example .		

(Part – II)

Q.No.5	(a)	10 gram of H_3PO_4 has been dissolved in excess of water to dissociate it completely into its ions . Calculate the number of Molecules in it. Also find out the number of positive and negative ions in case of complete dissociation in water $H_3PO_4 \rightleftharpoons 3H^+ + PO_4^{-3}$	(4)
	(b)	What is Liquid Crystal ? Also give its applications in daily life ?	(4)
Q.No.6	(a)	What is Plasma ? How it is formed ? Also give its characteristics.	(4)
	(b)	How the discovery of positive rays takes place ? Also give its only two characteristics.	(4)
Q.No.7	(a)	What is sp^3 Hybridization ? Explain the structure of Ammonia Molecule.	(4)
	(b)	Define and explain Hess's Law of constant heat summations with one example.	(4)
Q.No.8	(a)	Calculate the pH of a Buffer Solution in which 0 . 11 Molar CH_3COONa and 0 . 09 Molar Acetic Acid solutions are present . K_a for CH_3COOH is 1.85×10^{-5}	(4)
	(b)	Define and explain energy of activation by using Collision Theory.	(4)
Q.No.9	(a)	What is Raoult's Law ? Explain it .	(4)
	(b)	What is Electrochemical Series ? Give its two applications in detail.	(4)

31-07-2021