

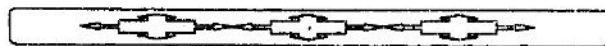


BWP-G1-11-19

Chemistry	(B)	L.K.No. 1113	Paper Code No. 6483
Paper I	(Objective Type)	Inter -A- 2019	(New Pattern)
Time :	20 Minutes	Inter (Part I)	Group Ist
Marks :	17	Session (2015 -17) to (2018 - 20)	

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	Unit of Rate Constant is same as that of the rate of reaction in :
(1)	(A) First Order Reaction (B) Second Order Reaction (C) Zero Order Reaction (D) Third Order Reaction
(2)	Stronger the Oxidizing Agent, greater is the : (A) Oxidation Potential (B) Reduction Potential (C) Redox Potential (D) E.M.F. of Cell
(3)	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
(4)	Molarity of Pure Water is : (A) 1 (B) 18 (C) 55.5 (D) 6
(5)	The solubility product of AgCl is $2.0 \times 10^{-10} \text{ mol}^2 \text{ dm}^{-6}$. The maximum concentration of Ag^+ ions in the solution is : (A) $2.0 \times 10^{-10} \text{ mol dm}^{-3}$ (B) $1.41 \times 10^{-5} \text{ mol dm}^{-3}$ (C) $1.0 \times 10^{-10} \text{ mol dm}^{-3}$ (D) $4.0 \times 10^{-20} \text{ mol dm}^{-3}$
(6)	The change in heat energy of a chemical reaction at constant temperature and pressure is called : (A) Enthalpy Change (B) Bond Energy (C) Heat of Sublimation (D) Internal Energy Change
(7)	Which of the following species has unpaired electrons in antibonding molecular orbitals : (A) O_2^{2+} (B) N_2^{2-} (C) B_2 (D) F_2
(8)	Which of the following Molecules has Zero Dipole Moment : (A) NH_3 (B) CHCl_3 (C) BF_3 (D) H_2O
(9)	When 6d is complete, the entering electron goes into : (A) 7f (B) 7s (C) 7p (D) 7d
(10)	Quantum Number Values for 2p Orbitals are : (A) $n = 2, \ell = 1$ (B) $n = 1, \ell = 2$ (C) $n = 1, \ell = 0$ (D) $n = 2, \ell = 0$
(11)	Which of the given is Pseudo Solid : (A) CaF_2 (B) Glass (C) NaCl (D) All these
(12)	Acetone and Chloroform are soluble in each other due to : (A) Intermolecular Hydrogen Bonding (B) Instantaneous Dipole (C) Ion - Dipole Interaction (D) All these
(13)	The deviation of a Gas from ideal behaviour is maximum at : (A) $-10^\circ\text{C}, 5 \text{ atm}$ (B) $-10^\circ\text{C}, 2 \text{ atm}$ (C) $100^\circ\text{C}, 2 \text{ atm}$ (D) $0^\circ\text{C}, 2 \text{ atm}$
(14)	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
(15)	Solvent Extraction is an equilibrium process and it is controlled by : (A) Law of Mass Action (B) The amount of solvent used (C) Distribution Law (D) The amount of solute used
(16)	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
(17)	27g of Al will react completely with how much mass of O_2 to produce Al_2O_3 : (A) 8 g Oxygen (B) 16 g Oxygen (C) 32 g Oxygen (D) 24 g Oxygen



Roll No.	1113 - 21000	Session (2015 -17) to (2018 - 20)	Inter (Part - I)
Chemistry (Subjective)	Inter - A -2019	Time 2 : 40 Hours Marks : 68	(New Pattern)/ 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.

Make Diagram where necessary.

Part - I

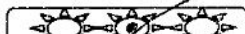
BWP-GI-11-19

22 x 2 = 44

- Q.No.2 (i) Define Relative Atomic Mass. Also give two examples.
(ii) How can efficiency of a reaction is expressed? Write down its formula.
(iii) Differentiate between Molecule and Molecular Ion.
(iv) Write down any four features of Ideal Solvent.
(v) State Partition Law.
(vi) Prove that $d = \frac{PM}{RT}$
(vii) Calculate the value of R in S.I. Units.
(viii) Define Plasma. Also give its one application.
(ix) Write down the S.I. Units of 'a' and 'b' in van der Waal's Equation.
(x) Differentiate between Ideal and Non - Ideal Solutions.
(xi) One Molal Solution of Urea in water is dilute as compared to one molar solution of Urea, but the number of particles of the solute is same. Justify it.
(xii) Define Mole Fraction. Also write down its formula.
- Q.No.3 (i) Evaporation causes cooling. Justify.
(ii) Boiling needs a constant supply of heat. Justify.
(iii) How Earthenware vessels keep water cool?
(iv) Vacuum Distillation can be used to avoid decomposition of a sensitive liquid. Justify.
(v) Why is it necessary to decrease the pressure in the discharge tube to get the Cathode Rays?
(vi) Why the Positive Rays are also called Canal Rays?
(vii) Whichever gas is used in the discharge tube, the nature of the Cathode Rays remain the same, why?
(viii) Differentiate between Slow Moving Neutrons and Fast Moving Neutrons.
(ix) Why Solubility of Glucose in water is increased by increasing the temperature?
(x) Define pH and pOH.
(xi) Give two properties of Enzyme.
(xii) Differentiate between Average and Instantaneous Rate.
- Q.No.4 (i) Define Polar Bond. Give formulas of two diatomic molecules which have polar bonds.
(ii) Define Coordinate Covalent Bond. Draw Coordinate Covalent Bond between NH_3 and BF_3 molecules.
(iii) Why Molecular Orbital Theory is superior to Valence Bond Theory?
(iv) The Dipole Moment of CO_2 Molecule is zero but that of SO_2 molecule is greater than zero, justify.
(v) Define System and Surrounding with reference to Thermochemistry.
(vi) Define Enthalpy of Neutralization. Write thermochemical equation for Enthalpy of Neutralization between Strong Acid and Strong Base.
(vii) Show that Oxidation Number of Cr in K_2CrO_4 is +6.
(viii) Write the reactions : Electrolysis of Fused NaCl with related Oxidation and Reduction Reactions at Anode and Cathode respectively.
(ix) SHE acts as Anode when connected to Cu Electrode but acts as Cathode when connected to Zn Electrode, explain briefly.

Part - II

- Q.No.5 (a) Define Actual Yield. Why is Actual Yield mostly less than Theoretical Yield? Write down formula of Percentage Yield. (4)
(b) Give any four characteristics of Covalent Solids. (4)
- Q.No.6 (a) One Mole of Methane Gas is maintained at 300 K. Its volume is 250 cm^3 . Calculate the pressure exerted by the Gas. (4)
(b) Derive the equation for the radius of nth Orbit of Hydrogen Atom using Bohr's Model. (4)
- Q.No.7 (a) Define Atomic Orbital Hybridization. Explain sp^2 - Hybridization giving example of BF_3 . (4)
(b) Differentiate between Spontaneous and Non - Spontaneous processes with examples. (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) Write two factors which affect the rate of Reaction. (4)
- Q.No.9 (a) Define Hydrolysis. Explain it with two examples. (4)
(b) Write any four applications of Electrochemical Series. (4)



BWP-G2-11-19



Chemistry	(A)	L.K.No. 1114	Paper Code No. 6482
Paper I	(Objective Type)	Inter -A- 2019	(New Pattern)
Time :	20 Minutes	Inter (Part - I)	(Group 2nd)
Marks :	17	Session (2015 -17) to (2018 - 20)	

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	The volume occupied by 1.4 g of N ₂ at S.T.P. is :
(1)	(A) 2.24 dm ³ (B) 22.4 dm ³ (C) 1.12 dm ³ (D) 112 cm ³
(2)	The mass of one mole of electrons is :
	(A) 1.008 mg (B) 0.55 mg (C) 0.184 mg (D) 1.673 mg
(3)	The comparative rates at which the solutes move 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
(4)	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
(5)	The molar volume of CO ₂ is maximum at :
	(A) S.T.P (B) 127°C and 1 atm (C) 0°C and 2 atm (D) 273°C and 2 atm
(6)	Acetone and Chloroform are soluble in each other due to :
	(A) Intermolecular Hydrogen Bonding (B) Ion - Dipole Interaction (C) Instantaneous Dipole Forces (D) London Dispersion Forces
(7)	Ionic Solids are characterized by :
	(A) Low Melting Points (B) Good Conductivity in Solid State (C) High Vapour Pressures (D) Solubility in Polar Solvents
(8)	Splitting of Spectral Lines when atoms are subjected to strong electric field is called :
	(A) Zeeman Effect (B) Stark Effect (C) Photoelectric Effect (D) Compton Effect
(9)	Quantum Number values for 2p Orbitals are :
	(A) n = 2, l = 1 (B) n = 1, l = 2 (C) n = 1, l = 0 (D) n = 2, l = 0
(10)	Which of the following Hydrogen Halides has the highest percentage of ionic character :
	(A) HCl (B) HBr (C) HF (D) HI
(11)	Which of the following Molecules has Zero Dipole Moment :
	(A) NH ₃ (B) CHCl ₃ (C) H ₂ O (D) BF ₃
(12)	For a given gaseous process, the heat changes at constant pressure (q _p) and at constant volume (q _v) are related to each other as :
	(A) q _v = q _p (B) q _p < q _v (C) q _p > q _v (D) q _p = q _v / 2
(13)	The pH of 10 ⁻³ mol dm ⁻³ of an aqueous solution of H ₂ SO ₄ is :
	(A) 3.0 (B) 2.7 (C) 2.0 (D) 1.5
(14)	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
(15)	A solution of glucose is 10% w/v. The volume in which its one gram mole is dissolved will be :
	(A) 1 dm ³ (B) 1.8 dm ³ (C) 200 cm ³ (D) 900 cm ³
(16)	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
(17)	If the rate equation of a reaction 2A + B → products is, rate = k[A] ² [B], and A is present in large excess, then order of reaction is :
	(A) 1 (B) 2 (C) 3 (D) None of these

B

BWP-672-11-19

Roll No.	1114 - 22000	Session (2015 -17) to (2018 - 20)	Inter (Part -I)
Chemistry (Subjective)	Inter - A -2019	Time 2 : 40 Hours Marks : 68	(New Pattern) / 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.

Make Diagram where necessary.

Part - I

22 x 2 = 44

- Q.No.2 (i) Many Chemical Reactions taking place in our surrounding involve the limiting reactants. Justify it by two examples.
- (ii) How many Atoms are present in 0.1 g pure Na-23 ?
- (iii) Why the Atomic Mass of Neon Gas is in Fraction?
- (iv) What is Solvent Extraction? What is its importance?
- (v) How Crystals are dried by Filter Paper? What is disadvantage of this method?
- (vi) Why lighter gases diffuses through air rapidly than heavier gases?
- (vii) Derive Charles's Law from Kinetic Molecular Theory of Gases.
- (viii) Convert -40°C to Fahrenheit Scale.
- (ix) Define Plasma. Why it is neutral?
- (x) What is meant by Molar and Molal Solutions?
- (xi) Mention two applications of Depression in freezing point.
- (xii) Define Hydration and Hydrolysis.
- Q.No.3 (i) How Electrical Conductivity of Metal decreases by increase in temperature?
- (ii) Boiling need a constant supply of Heat. Justify.
- (iii) Justify that Diamond is non conductor of electricity.
- (iv) Ionic Solids are highly brittle, why?
- (v) Why is it necessary to decrease the pressure of gas in the discharge tube?
- (vi) Justify that e/m value is maximum for Hydrogen Gas.
- (vii) Give importance of Principal Quantum Number.
- (viii) Throw light on the factor $\frac{1}{273}$ in Charles's Law.
- (ix) Define pH and pOH. How are they related with pK_w ?
- (x) Explain the effect of change in temperature on K_w .
- (xi) Define Catalytic Poisoning with an example.
- (xii) Enzymes are always specific in action. Explain.
- Q.No.4 (i) Define Electronegativity. State the element with highest value of Electronegativity.
- (ii) Describe sp^2 -Hybridization. Mention a Molecule in which sp^2 -Hybridization is applied.
- (iii) Ionization Energy is an index to the metallic character justify.
- (iv) Difference of Electronegativity values of the bonded atoms is an index to the polar nature of Covalent Bond justify.
- (v) Define System and Surrounding.
- (vi) Describe Non-Spontaneous Process. Give an example.
- (vii) Give two applications of Fuel Cell.
- (viii) How Electrochemical series help to predict the feasibility of chemical reaction ?
- (ix) Write down reactions at Anode and Cathode during Electrolysis of Aqueous Solution of $NaNO_3$.

(Part - II)

- Q.No.5 (a) Define Limiting Reactant. How does it control the quantity of the product formed ? (4)
Explain with two examples.
- (b) Explain the following properties of Solids : (4)
(i) Allotropy (ii) Habit of a Crystal (iii) Cleavage Plane (iv) Transition Temperature
- Q.No.6 (a) Calculate the Density of CH_4 (g) at 0°C and 1 Atmospheric Pressure. (4)
- (b) Write the main points of Bohr's Atomic Model. (4)
- Q.No.7 (a) How does Molecular Orbital Theory explain the paramagnetic character of O_2 . (4)
- (b) State First Law of Thermodynamics. Also prove $q_p = \Delta H$ (4)
- Q.No.8 (a) The Solubility of PbF_2 at 25°C is 0.64 g/dm^3 . Calculate K_{sp} of PbF_2 . Molecular Mass of $PbF_2 = 245.2 \text{ g mol}^{-1}$ (4)
- (b) Explain the effect of Surface Area and light on the rate of reaction. (4)
- Q.No.9 (a) Define Elevation of Boiling Point. How is it measured experimentally? (4)
- (b) Discuss Discharging and Recharging of Lead Accumulator along with reactions occurring at electrodes. (4)

