DGIK-GI-11-19

11th CLASS – 12019

CHEMISTRY (NEW COURSE)
GROUP FIRST
ACADEMIC SESSION : 2015 - 2017 TO 2018 – 2020

TIME: 20 MINUTES
MARKS: 17

OBJECTIVE

NOTE: You have four choices for each objective type question as A , B , C and D . The choice which you think is correct , fill that circle in front of that question number. Use marker or pen to fill the circles. Cutting or filling two or more circles will result in zero mark in that question.

QUESTION NO. 1

1 The pressure of vapours maintain in ionization chamber of mass spectrometer during isotopic analysis is
(A) 10^{-5} torr (B) 10^{-7} torr (C) 10^{-9} torr (D) 10^{-11} torr

2 Volume occupied by one mole of gas at standard temperature and pressure is
(A) 54 dm^3 (B) 22.414 dm^3 (C) 2.24 dm^3 (D) 2.4 dm^3

3 Direct conversion of solid into its vapour is called
(A) Crystallization (B) Sublimation (C) Vapourization (D) Distribution

4 SI units of pressure is
(A) mmHg (B) atm (C) pound per square inch (D) Nm^{-2}

5 Deviation of gas from ideal behaviour is maximum at
(A) -10C° and 5.0 atm (B) -10C° and 2.0 atm (C) 100C° and 2.0 atm (D) 0C° and 2.0 atm

6 Acetone and chloroform are soluble in each other due to
(A) Intermolecular H-bonding (B) Ion dipole interaction
(C) Instantaneous dipole (D) London dispersion forces

7 The crystals of diamond is
(A) Ionic (B) Covalent (C) Molecular (D) Metallic

8 Lyman series occur in
(A) Visible region (B) U.V region (C) I.R. region (D) Micro-wave region

9 Orbitals having same energy are called
(A) Hybrid orbitals (B) Valence orbitals (C) Degenerate orbitals (D) D-orbital

10 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

11 One of the following molecule is polar in nature
(A) CH_4 (B) CO_2 (C) SO_2 (D) CCl_4

12 Calorie is equivalent to
(A) 0.4184 j (B) 41.84 j (C) 4.184 j (D) 418.4 j

13 The pH of a solution is 9 ,the solution is
(A) Weakly acidic (B) Weakly basic (C) Strongly acidic (D) strongly basic

14 Molarity of pure water is
(A) 1 (B) 18 (C) 55.5 (D) 6

15 The salt when dissolved in water form a solution with pH greater than 7 is
(A) $CuSO_4$ (B) NaCl (C) NH_4Cl (D) Na_2CO_3

16 If the salt bridge is not used between two half cells then the voltage
(A) Decrease rapidly (B) Decrease slowly (C) Does not change (D) Drops to zero

17 In zero order reaction, the rate is independent of
(A) Temperature of reaction (B) Concentration of reactants (C) Concentration of products (D) Pressure

SECTION-I DGK-G1-11-19

QUESTION NO. 2 Write short answers any Eight (8) questions of the following 16

1	What are monoisotopic elements ? Give name and symbol of such an element.
2	What is molecular ion ? Write formulas of any two of these ions
3	Define Avogadro's number .give its numerical values.
4	Write down four steps for complete quantitative determination of a sample of a substance.
5	State distribution law.
6	What is critical temperature of gas? Write name and formula of a gas whose critical temperature is above room temperature.
7	Describe two causes of deviation of real gas from ideal behaviour.
8	What is absolute zero? Show it by drawing a graph between volume and temperature.
9	State Graham's law of effusion. Give its equation.
10	What is upper consulate temperature? Give names of two liquids which are partially miscible with each other.
11	What is meant by a hydrate ? Give formulas of any two hydrates.
12	Why heat of hydration of Li^+ is greater than that of Cs^+ ?

QUESTION NO. 3 Write short answers any Eight (8) questions of the following 16

1	Boiling points of halogens increase going down the group .Give reason
2	Earthenware vessels keep the water cool. Explain
3	Why do the ionic solids not conduct electricity in solid state ?
4	Define order of reaction and specific rate constant
5	Define transition temperature. Give one example.
6	Write down any two properties of neutron.
7	Explain atomic spectrum with one example.
8	Mention any two defects in Rutherford atomic model.
9	Define $(n+\ell)$ rule.
10	Discuss the effect of common ion on the solubility of sparingly soluble salt with one example.
11	How is direction of reaction predicted by knowing its Kc value?
12	Explain the effect of surface area on the rate of a chemical reaction with one example.

QUESTION NO. 4 Write short answers any Six (6) questions of the following 12

1	Differentiate between bonding molecular orbital and anti-bonding molecular orbital.
2	Why polar bond is stronger than non-polar bond?
3	Why abnormality of bond length and bond strength in HI is less prominent than that of HCl.
4	Why atomic radii cannot be measured precisely?
5	Justify that heat of formation of compound is the sum of all the other enthalpies.
6	Describe Standard Enthalpy of solution with example.
7	How impure 'Cu' is purified by electrolysis?
8	How feasibility of reaction can be predicted from electrochemical series?
9	Write the reactions involved in alkaline battery.

SECTION-II

Note: Attempt any Three questions from this section 8 x 3 = 24

Q.5 (A)	Define stoichiometry. Give its assumptions. Mention two important laws which help to perform the stoichiometric calculation.
(B)	Explain H-bonding .discuss any three applications of H-bonding
Q.6 (A)	Calculate the density of $CH_{4(g)}$ at 0 °C and one atmospheric pressure.
(B)	Write down the postulates of Bohr's atomic model.
Q.7 (A)	Draw the shape of O_2 molecules according to molecular orbital theory.
(B)	Define spontaneous and non-spontaneous process. Give two examples of each.
Q. 8(A)	The solubility of PbF_2 at 25 °C is 0.64 g/dm^{+3}. Calculate K_{sp} of PbF_2 Molar mass of PbF_2 = 245.2 g/mol.
(B)	Define enzyme. Mention three characteristics of enzyme catalysis.
Q.9 (A)	State Raoult's Law in three different ways.
(B)	Describe the construction and working of Galvanic cell .