PAPER CODE - 6482

DGK-Gr-11-18

(11th CLASS – 12018)

TIME: 20 MINUTES
MARKS: 17

CHEMISTRY (NEW COURSE)
GROUP SECOND
ACADEMIC SESSION : 2015 – 2017 TO 2017 – 2019

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 number of atoms present in 0.5 mole of Na is
(A) 1.0×10^{23} (B) 6.02×10^{23} (C) 2.04×10^{23} (D) 3.01×10^{23}

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 Solvent extraction is an equilibrium process and it is controlled by
(A) law of mass action (B) the amount of solvent (C) distribution law (D) the amount of solute

4 Equal masses of methane and oxygen are mixed in an empty container at 25 °C. The fraction of total pressure exerted by oxygen is
(A) $\frac{1}{3}$ (B) $\frac{8}{9}$ (C) $\frac{1}{9}$ (D) $\frac{16}{17}$

5 Heat change for one mole of a solid during converting it into liquid is called
(A) Molar heat of fusion (B) Molar heat of vaporization
(C) Molar heat of sublimation (D) Enthalpy change

6 Which of the following is a pseudo solid?
(A) CaF_2 (B) Glass (C) NaCl (D) Diamond

7 The limiting line of Balmer series lies in
(A) Visible region (B) U.V. region (C) I.R. region (D) X-rays region

8 What is the value of $(n + \ell)$ for the 3d sub-shell?
(A) 3 (B) 4 (C) 5 (D) 6

9 Which of the following molecules has zero dipole moment?
(A) NH_3 (B) $CHCl_3$ (C) H_2O (D) BF_3

10 The amount of energy released by absorbing an electron in the valence shell of an atom is
(A) Ionization energy (B) Electron affinity (C) Electro negativity (D) Bond energy

11 The number of fundamental ways of transferring energy into or out of system is
(A) One (B) Two (C) Three (D) Four

12 When Kc value of a reaction is very small, the equilibrium position lies to
(A) Left (B) Right (C) May be left or right (D) Can not be predicted

13 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

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

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 Oxidation number of " Cr " in $K_2Cr_2O_7$ is
(A) +2 (B) +4 (C) +6 (D) +8

17 Hydrolysis of Tertiary butyl bromide has order of reaction
(A) First (B) Pseudo first (C) Second (D) Third

11th CLASS - 12018

CHEMISTRY (NEW COURSE) | SUBJECTIVE | TIME: 2:40 HOURS

GROUP SECOND | MARKS: 68

ACADEMIC SESSION: 2015 –17 TO 2017 –19

DGK G2-11-18

SECTION-I

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

1	Write importance of combustion analysis.
2	How many formula units are there in 100 g of KCl_3
3	Many chemical reactions taking place in our surrounding involve limiting reactants, give reason
4	Define sublimation.
5	How will you decolonize the undesired colour in a product ?
6	SO_2 is comparatively non ideal at 273K but behave ideally at 327 °C , give reason.
7	Write two applications of Dalton's Law of Partial Pressure.
8	Derive Avogadro's Law from KMT.
9	Define Buffer Capacity.
10	What is ionization constant of acids
11	What is effect of temperature on following system at equilibrium $2SO_2(g) + O_2(g) \rightleftharpoons 2SO_3(g)$ $\Delta H = -194.5$ kJ/mol
12	Define law of mass action .

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

1	How do earthen ware vessels keep water cool ?
2	Why are the vapour pressure of solids far less than those of liquids ?
3	Why does ice float on water ?
4	Why are the ionic crystals highly brittle ?
5	Differentiate between ionization energy and electron affinity.
6	Define electro negativity, and how its difference between two atoms affects bond strength ?
7	How does NF_3 and BF_3 have different structural formulae although both have same type of molecular formula?
8	Define dipole moment and write the S.I. units of dipole moment .
9	What is thermo-chemical equation? Give its two examples.
10	State that burning of candle is spontaneous process.
11	Justify that the total volume of solution by mixing 100cm^3 of H_2O with 100 cm^3 of alcohol may not be equal to 200 cm^3 .
12	Justify that one molal solution of urea in H_2O is dilute as compared to one molar solution of urea in H_2O but the number of particles of solute are same?

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

1	Why are positive rays also called canal rays ? Give its reason.
2	Differentiate between orbit and orbital.
3	State Pauli's Exclusion principle and Hund's rule.
4	Give two importance of Moseley's law.
5	Differentiate between primary cells and secondary cells with two examples.
6	Voltaic cell is reversible cell. Justify it.
7	Define electrode potential and standard electrode potential.
8	Define order of reaction and velocity constant
9	What is heterogeneous catalysis ? Give two examples.

SECTION-II

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

5-(A)	A sample of liquid consisting of carbon, hydrogen and oxygen was subjected to combustion analysis. 0.5439 g of the compound gave1.039 g of CO_2 , 0.6369 g of water. Determine the empirical formula of the compound.
(B)	Define liquid crystals ; write down three uses of liquid crystals.
6-(A)	State and explain Graham's law of diffusion. Give its experimental verification.
(B)	What are Quantum Number's. Explain Azimuthal Quantum Number.
7-(A)	How will you describe paramagnetic character of O_2 molecule on the bases of molecular orbital theory?
(B)	Define the following with one example (i) System (ii) Surrounding (iii) State function (iv) Endothermic reaction
8-(A)	What are buffer solutions ? Derive Henderson's equation for finding pH of a buffer.
(B)	Describe the electrolysis of aqueous solution of sodium chloride.
9-(A)	The vapour pressure of water at 30 °C is 28.4 torr. Calculate the vapour pressure of a solution containing 70 g of cane sugar ($C_{12}H_{22}O_{11}$) in 1000 g of water at same temperature. Also , calculate the lowering of vapour pressure.
(B)	Give names of different types of methods for determining order of a reaction and explain half-life method.