PAPER CODE - 6481

11th CLASS – 12021

DGK-G1-21

CHEMISTRY
GROUP : FIRST

OBJECTIVE

TIME: 20 MINUTES
MARKS: 17

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 A limiting reactant is one which
(A) is taken in lesser quantity in grams as compared to other reactants
(B) is taken in lesser quantity in volume as compared to the other reactants
(C) Gives the maximum amount of the product which is required
(D) Gives the minimum amount of the product under consideration

2 The branch of chemistry which tells us the quantitative relationship between reactants and products is called
(A) Stoichiometry (B) Thermometry (C) Organic chemistry (D) Physical chemistry

3 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

4 Temperature and number of moles are kept constant in
(A) Boyle's law (B) Charles's law (C) Avogadro's law (D) Dalton's law of partial pressure

5 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) $\frac{16}{17}$

6 NH_3 shows a maximum boiling point among the hydrides of Vth group elements due to
(A) Very small size of nitrogen (B) Lone pair of electrons present in nitrogen
(C) Enhanced electronegative character of nitrogen (D) Pyramidal structure of NH_3

7 Amorphous solids
(A) Have sharp melting points (B) Good conductivity in solid state
(C) Have perfect arrangement of atoms (D) Can possess small regions of orderly arrangement of atoms

8 Mass of an electron is
(A) 9.1095×10^{-31} kg (B) 6.022×10^{23} (C) 6.022×10^{22} (D) 10.10×10^{30}

9 The velocity of photon is
(A) Independent of its wave length (B) Depends on its wave length (C) Equal to square of its amplitude
(D) Depends on its source

10 Minimum amount of energy required to remove an electron from its gaseous atom is called
(A) Ionization energy (B) Electron – Affinity (C) Oxidation (D) Reduction

11 Methane molecule contains type of hybridization
(A) SP (B) SP^2 (C) SP^3 (D) dSP^2

12 The property of a system which has some definite values for initial and final states is called
(A) State (B) State function (C) System (D) Surroundings

13 The reaction which proceeds in both forward and backward directions is called
(A) Irreversible reaction (B) Reversible reaction (C) Spontaneous reaction (D) Non spontaneous reaction

14 The pH of 10^{-3} moles of an aquous solution of H_2SO_4 is
(A) 3.0 (B) 2.7 (C) 2.0 (D) 1.5

15 Osmotic pressure is an example of
(A) Colligative properties (B) Additive properties (C) Constitutive properties (D) Internal energy

16 Stronger the oxidizing agent greater is the
(A) Oxidation potential (B) Reduction potential (C) Redox potential (D) E.M.F of the cell

17 If the rate equation of the reaction $2A + B \rightarrow$ products is rate = $k[A]^2[B]$, and A is, present in large excess, the order of the reaction is
(A) 1 (B) 2 (C) 3 (D) 4

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CHEMISTRY
GROUP : FIRST

SUBJECTIVE
SECTION-I

TIME : 2:40 HOURS
MARKS : 68

DGK-G1-21

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

1	N_2 and CO have the same number of electrons , protons and neutrons
2	Law of conservation of mass has to be obeyed during stoichiometric calculations , explain
3	Why actual yield is always less than theoretical yield ?
4	Write down any two uses of chromatography
5	In solvent extraction technique , why repeated extraction using small portions of solvent are more efficient than using a single extraction but larger volume of solvent
6	Write formulas to interconvert various scales of temperature
7	State Dalton's law of partial pressures
8	Write down two characteristics of plasma
9	How density of an ideal gas can be calculated from ideal gas equation ?
10	Write two points of differences between ideal and non-ideal solutions
11	State Raoult's law in any two forms
12	What are Colligative properties ? Why are they called so ?

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

1	Why ethyl alcohol is soluble in water ?
2	Why HF is a weaker acid than HCl ?
3	What is Habit of crystal ?
4	What is meant by geometrical shape of solid ?
5	What are canal rays ?
6	What is reason for production of positive rays ?
7	What is planks constant ? Give its value
8	What is defect of Rutherford's atomic model
9	Why do we need Buffer Solutions ?
10	What is effect of catalyst on equilibrium constant ?
11	Define rate of reaction and give its units
12	What is Half life period of a reaction ?

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

1	Write two causes of chemical combination
2	What is the difference between ionic Radii and covalent Radii ?
3	Define ionization energy. Give one example
4	Differentiate between Bonding and Anti-Bonding molecular orbital
5	Differentiate between system and surrounding
6	Define Enthalpy of atomization. Give one example
7	Calculate the Oxidation Number of Manganese in $KMnO_4$
8	Write the difference between ionization and electrolysis
9	Explain that a salt bridge maintains the neutrality in the cell

SECTION-II

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

Q.5 (A)	Define hydrogen bonding. Explain any three applications of hydrogen bonding
(B)	Calculate the number of grams of K_2SO_4 and water produced when 14 g of KOH are reacted with excess of H_2SO_4 . Also calculate the number of molecules of water produced
Q.6 (A)	Discuss in detail the practical applications of Daltons law of partial pressure
(B)	Give the characteristics of cathode rays
Q.7 (A)	Explain structure of CH_4 and $CH_2 = CH_2$ by atomic Hybridization process
(B)	State Hess's law and explain it with at least two examples
Q.8 (A)	N_2 and H_2 gases combine to give ammonia (NH_3) gas. The value of equilibrium constant (K_c) for this reaction at 500 °C is 6×10^{-2} . Calculate the value of K_p for this reaction
(B)	Name any three methods for finding order of a reaction and explain half life method
Q.9 (A)	Write not on elevation of Boiling point of a solution and relate it with molecular mass of solute in a solution
(B)	Explain working of voltaic cell along with its diagram