PAPER CODE - 6482

D

11th CLASS – 12021

D6K-92-21

CHEMISTRY
GROUP : SECOND

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 Isotopes differ in
(A) Properties which depend upon mass (b) Arrangement of electrons in orbitals (C) Chemical properties (D) The extent to which they may be affected in electromagnetic field

2 27 g 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

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 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) $55.6 \times 6.02 \times 10^{23}$

5 Which of the following will have the same number of molecules at STP ?
(A) 280 cm^3 of CO_2 and 280 cm^3 of N_2O (B) 11.2 dm^3 of O_2 and 32 g of O_2
(C) 44 g of CO_2 and 11.2 dm^3 of CO (D) 28 g of N_2 and 5.6 dm^3 of oxygen

6 When water freezes at 0 °C , its density decreases due to
(A) Cubic structure of ice (B) Empty spaces present in the structure of ice
(C) Change of bond lengths (D) Change of bond angles

7 Amorphous solids
(A) Have sharp melting points (B) Undergo clean cleavage when cut with knife
(C) Have perfect arrangement of atoms (D) Can possess small regions of orderly arrangement of atoms

8 Orbitals having same energy are called
(A) Hybrid orbitals (B) Valence orbitals (C) Degenerate orbitals (D) d orbitals

9 The wave number of light emitted by a certain source is $2\times10^6 m^{-1}$. The wavelength of this light will be
(A) 500 nm (B) 500 m (C) 200 nm (D) $5\times10^7 m$

10 The amount of energy released by absorbing electron in the valence shell is
(A) Ionization energy (B) Electron affinity (C) Electronegativity (D) Atomization energy

11 The bond angle in ammonia molecule is
(A) 109.5° (B) 107.5° (C) 104.5° (D) 180°

12 The net heat change in a chemical reaction is same wheather it is brought about in two or more different ways in one or several steps. It is known as
(A) Henry's Law (B) Joule's Principle (C) Hess's Law (D) Law of conservation of energy

13 The term pH was introduced by
(A) Henderson (B) Millikan (C) Le-Chattilier (D) Sorenson

14 In Haber process , for formation of NH_3 , the process used is
(A) 100 atm (B) 200-300 atm (C) 600 atm (D) 1000 atm

15 The molal boiling point constant is the ratio of the elevation of boiling point to
(A) Molarity (B) Molality (C) Mole fraction of solvent (D) Mole fraction of solute

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

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

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CHEMISTRY | **SUBJECTIVE** | **TIME : 2:40 HOURS**
GROUP : SECOND | **SECTION-I** | **MARKS : 68**

DGK-92-21

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

1	Why 23 g of Na and 238 g of uranium have equal number of atoms in them ?
2	How Mg-atom is twice heavier than that of C-atom ? Explain
3	Define gram formula giving one example
4	What do you mean by partition chromatography ?
5	Define sublimation with an example
6	Write any two applications of plasma
7	Why pilots feel uncomfortable breathing at higher altitude and divers cannot use normal air ?
8	Deduce the SI unit of 'R'
9	What are isotherms ? What happens to the positions of isotherms when they are plotted at high temperature ?
10	Why the relative lowering of vapour pressure is independent of temperature ?
11	What is ebullioscopic constant ?
12	Define solubility with a suitable example

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

1	Draw the shape , axes and angles of Hexagonal System
2	Define Allotropy , with an example
3	In a very cold winter the fish in garden ponds owe their lives to hydrogen bonding ? Justify
4	Define Debye forces , give an example
5	Differentiate between continuous spectrum and line spectrum
6	Write down any two defects of Bohr's Atomic Model
7	Give any two postulates / points of Planck's Quantum theory
8	What is magnetic quantum number ? Give its value
9	Justify mixture of sodium acetate and acetic acid gives us the acidic buffer
10	Define common ion effect , with an example
11	Differentiate between Activated complex and Activation Energy
12	What is half life period ? Give an example

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

1	Find out the oxidation number of chromium in chromium chloride ($CrCl_3$)
2	What is the basic difference between Galvanic cell and electrolytic cell ?
3	Give difference between metallic and electrolytic conduction
4	Why it is necessary to mention physical state of reactants and products in a thermo chemical equation ?
5	Define the standard enthalpy of atomization by giving an example
6	Define Oxidizing agent , Justify with an example
7	Why oxygen molecule show paramagnetic behaviour
8	Distinguish between sigma and Pi bond
9	Predict the shapes of following molecules according to VSEPR Theory (i) Water (ii) $BeCl_2$

SECTION-II

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

Q.5 (A)	Mg metal reacts with HCl to give hydrogen gas. What is the minimum volume of HCl solution (27 % by weight) required to produce 12.1 g of H_2 . The density of HCl solution is 1.14 g/cm^3 $Mg_{(s)} + 2\ HCl_{(aq)} \rightarrow MgCl_{2\,(aq)} + H_{2\,(g)}$
(B)	Define H – bonding , explain any three applications of H – bonding
Q.6 (A)	What is Kinetic Interpretation of temperature ? Explain
(B)	Derive a relation for the energy of the revolving electron
Q.7 (A)	Discuss the structure of CH_4 and NH_3 by orbital Hyberdization Method
(B)	Calculate Lattice energy of NaCl by Born – Haber Cycle
Q.8 (A)	Calculate pH of (i) 10^{-4} mol dm^{-3} of Ba $(OH)_2$ (ii) 1.0 mol dm^{-3} of NH_4OH which is 1 % dissociated
(B)	Explain half life method to find out order of a reaction
Q.9 (A)	Describe Beckmann's freezing point method for measurement of ΔT_f
(B)	Describe the electrolysis of molten sodium chloride and a concentrated solution of sodium chloride