GROUP : FIRST	11th CLASS – 1st Annual 2024	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 marks in that question.

DGK-1-24

QUESTION NO. 1

1 For a reaction $NaOH + HCl \longrightarrow NaCl + H_2O$ the change in enthalpy is called :
(A) Heat of neutralization (B) Heat of reaction
(C) Heat of formation (D) Heat of combustion

2 An excess of silver nitrate is added to barium chloride solution and precipitates removed by filtration , what are the main ions in the filtrate ?
(A) Ba^{2+} and NO_3^- only (B) Ag^+ , Ba^{2+} and NO_3^- only
(C) Ag^+ and NO_3^- only (D) Ba^{2+}, NO_3^- and Cl^-

3 Which of the following solution has the highest boiling point ?
(A) 18 % solution of glucose (B) 6.0 % solution of urea
(C) 5.85 % solution of sodium chloride (D) All have the same boiling point

4 If a strip of Cu metal is placed in a solution of $FeSO_4$:
(A) Cu will be deposited (B) Fe is precipitated out
(C) Cu and Fe both dissolved (D) No reaction takes place

5 With increase of 10 °C temperature the rate of reaction doubles. This increase in rate of reaction is due to:
(A) Increase in number of effective collisions. (B) Increase in activation energy of reactants.
(C) Decrease in activation energy of reaction.
(D) Decrease in the number of collisions between reactant molecules.

6 One mole of SO_2 contains :
(A) 6.02×10^{23} atoms of oxygen (B) 6.02×10^{23} atoms of sulphur
(C) 18.1×10^{23} molecules of SO_2 (D) 4 gram atoms of SO_2

7 How many particles are called fundamental particles of an atom ?
(A) 3 (B) 5 (C) 100 (D) 6

8 What are the units of R_f value ?
(A) Cm (B) Cm^3 (C) dm^3 (D) No units

9 Which of the following cannot sublime ?
(A) Naphthalene (B) Iodine (C) Ammonium chloride (D) MnO_2

10 If absolute temperature of a gas is doubled and the pressure is reduced to one half , the volume of the gas will
(A) Be doubled (B) Reduced 1/4 (C) Increases four times (D) Remain unchanged

11 Partial pressure of oxygen in lungs (in torr) is :
(A) 150 (B) 116 (C) 760 (D) 159

12 Molecules of CO_2 in dry ice form the :
(A) Molecular crystals (B) Ionic crystals (C) Covalent crystals (D) Any type of crystals

13 Vapour pressure is not affected by :
(A) Temperature (B) Intermolecular forces (C) Surface area (D) Pressure

14 Wave number of the light emitted by a certain source is $2 \times 10^6\ m^{-1}$. The wavelength of this light will be :
(A) 500 n.m (B) 500 m (C) 200 n.m (D) 5×10^7 m

15 Radioactive copper emits :
(A) α - rays (B) β - rays (C) γ - rays (D) Positive rays

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

17 The bond order of helium molecule is :
(A) 3 (B) 2 (C) 1 (D) Zero

D

CHEMISTRY		TIME: 2 HRS 40 MINUTES
GROUP : FIRST	SUBJECTIVE PART	MARKS: 68

SECTION–I

QUESTION NO. 2 Write short answers to any Eight (8) of the following DGK-1-24 **16**

i	N_2 and CO have the same number of electrons, protons and neutrons, justify.
ii	Law of conservation of mass have to be obeyed during stoichiometric calculations, explain.
iii	Why actual yield is always less than theoretical yield ?
iv	Write two suitable uses of the technique of chromatography
v	In solvent extraction technique, why repeated extractions using small portions of solvent are more efficient than using a single extraction but larger volume of solvent.
vi	How undesirable colours in crystallization process can be removed ?
vii	Write formulas to interconvert various scales of temperature.
viii	How density of an ideal gas can be calculated from ideal gas equation ?
ix	Derive Charle's law by kinetic equation of gases.
x	What is Handerson equation and for what purpose it is used ?
xi	What are applications of buffer solutions in daily life ?
xii	Derive ionic product of water and what is its value at $25^{o}C$.

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

i	Why intermolecular forces are weaker than intramolecular forces ?
ii	What are advantages of Vacuum distillation ?
iii	Differentiate between Isomorphism and polymorphism.
iv	Diamond is hard and electrical insulator. Justify it.
v	Explain Atomic Emission Spectrum.
vi	Define (a) Wave number (b) Frequency
vii	Write electronic configuration of Cr_{24} and Zn_{30}
viii	What is Moseley's law ? Give its mathematical expression.
ix	What do you mean by water of crystallization ? Give an example.
x	Why NaCl and KNO_3 are used to lower the melting point of ice ?
xi	Differentiate between instantaneous and average rate of a reaction.
xii	What do you mean by Homogeneous catalysis ? Give an example.

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

i	How does the hybridization scheme explain the bond length ?
ii	Define electron affinity. Name the factors affecting it.
iii	The radius of an atom cannot be determined precisely. Give the reason.
iv	Why do the lone pairs of electrons on an atom occupy more space than bond pairs ?
v	Define standard enthalpy of formation. Give an example.
vi	Define exothermic reaction. Give an example.
vii	Differentiate between spontaneous and non-spontaneous process.
viii	What is anodized aluminium ?
ix	Give the electrode reactions during the recharging of lead accumulator.

SECTION-II

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

Q.5.(A)	Define limiting reactant , write down the steps involved in identification of limiting reactant.	1+3
(B)	Define hydrogen bonding , how does it explain structure of ice (without diagram).	1+3
Q.6.(A)	Write a note on " Principal Quantum Number "	4
(B)	250 Cm^3 of the sample of hydrogen gas effuses four times as rapidly as 250 Cm^3 of an unknown gas. Calculate the molar mass of unknown gas.	4
Q.7.(A)	Discuss sp – hybridization with example of ethyne.	1+3
(B)	The solubility product of Ag_2CrO_4 is 2.6×10^{-2} at $25^{o}C$. Calculate the solubility of the compound.	4
Q.8.(A)	Describe construction and working of a Bomb Calorimeter.	4
(B)	What is standard electrode potential ? How can it be measured ?	4
Q.9.(A)	What are continuous and discontinuous solubility curves ? Draw these curves to explain the answer.	2+2
(B)	Discuss homogeneous and heterogeneous catalysis in detail with two examples of each.	2+2