Roll No. of Candidate: _____ 2019

Chemistry (New Scheme) **(INTERMEDIATE PART-I) 319 – (I)** **Group: II** **Paper: I**

Time: 20 Minutes **OBJECTIVE** **Marks: 17**

Code: 6482

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. Attempt as many questions as given in objective type question paper and leave other blank.

1.

1. The mass of one mole of electrons is:
   A) 1.008 mg B) 0.55 mg C) 0.184 mg D) 1.673 mg
2. The volume occupied by 1.4 g of N_2 at S.T.P is:
   A) 2.24 dm^3 B) 22.4 dm^3 C) 1.12 dm^3 D) 112 cm^3
3. Solvent extraction is an equilibrium process and is controlled by:
   A) law of mass action B) distribution law
   C) amount of solvent used D) the amount of solute
4. The molar volume of CO_2 is maximum at:
   A) S.T.P B) 127 °C and 1 atm C) 0 °C and 2 atm D) 273 °C and 2 atm
5. Pressure remaining constant, at which temperature, the volume of gas will become twice of what it is at 0 °C :
   A) 546 °C B) 200 °C C) 546 K D) 273 K
6. Which of the following is a pseudo solid?
   A) CaF_2 B) glass C) NaCℓ D) all of these
7. Ionic solids are characterized by:
   A) low melting points B) high vapour pressures
   C) good conductivity in solid state D) solubility in polar solvents
8. Orbitals having same energy are called:
   A) hybrid orbitals B) valence orbitals C) degenerate orbitals D) d-orbitals
9. Splitting of spectral lines when the atoms are subjected to strong electric field is called:
   A) zee-man effect B) stark effect C) photo electric effect D) Compton effect
10. Which of the following molecules has zero dipole moment:
    A) NH_3 B) $CHCℓ_3$ C) H_2O D) BF_3
11. Which of the following species has unpaired electrons in the anti-bonding molecular orbitals:
    A) O_2^{2+} B) N_2^{2-} C) B_2 D) F_2
12. Calorie is equivalent to:
    A) 0.418 J B) 41.84 J C) 4.184 J D) 418.4 J
13. The pH of 10^{-3} mole.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) 1.0 B) 18.0 C) 55.5 D) 6.0
15. A solution of glucose is 10% w/v . The volume in which 1 g mole of it is dissolved will be:
    A) 1 dm^3 B) 1.8 dm^3 C) 200 cm^3 D) 900 cm^3
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 products D) none of these

Chemistry (New Scheme) (INTERMEDIATE PART-I) 319 Group: II Paper: I
Time: 2:40 Hours SUBJECTIVE Marks: 68

Note: Section I is compulsory. Attempt any THREE (3) questions from Section II.

(SECTION – I)

2. Write short answers to any EIGHT questions. $(2 \times 8 = 16)$

i. Define Molar volume. Give two examples.
ii. How limiting reactants are identified?
iii. Why N_2 and CO have same number of electrons, protons and neutrons?
iv. Define sublimation, write the names of any two substances which are purified by sublimation process.
v. Differentiate between adsorption and partition chromatography.
vi. Drive Boyle's law from Kinetic molecular theory of gases.
vii. State Graham's law of diffusion. Also write its mathematical form.
viii. Define critical temperature and pressure.
ix. Write down two false points in Kinetic molecular theory of gases.
x. The concentration in term of molality is independent of temperature but molarity Depends. Give reason.
xi. Define parts per million (ppm); also write its formula.
xii. One molal solution of urea is dilute as compared to one molar solution; justify it.

3. Write short answers to any EIGHT questions. $(2 \times 8 = 16)$

i. Give reason for the lowest boiling point of hydride of group IV-A elements.
ii. Ethane and Hexane has B.P -88.6 °C and 68.7 °C respectively, comment on this drastic change.
iii. Define isomorphism with example.
iv. Sodium chloride and Cesium Flouride have the same geometry, comment on it.
v. Why is it necessary to decrease the pressure in the discharge tube to get the cathode rays?
vi. Why are positive rays called as Canal rays?
vii. Distribute electrons in orbitals of $_{29}Cu$, $_{20}Ca$.
viii. How radioactive $^{66}_{29}Cu$ is converted into $^{66}_{30}Zn$. Give equation.
ix. Define buffer capacity. Write down the Henderson equation for acidic buffers.
x. State law of Mass Action.
xi. Differentiate between order of reaction and rate of reaction.
xii. Define the terms: i) Promotor ii) Auto catalyst

4. Write short answers to any SIX questions. $(2 \times 6 = 12)$

i. State octet rule. Give two examples in which octet rule is not obeyed.
ii. Define electronegativity. How does it vary in periodic table?
iii. Radius of cation is smaller than its corresponding atom. Why?
iv. Differentiate between a Sigma and Pi bond.
v. Define system and surrounding.
vi. State First Law of Thermodynamics. Give its mathematical expression.
vii. Differentiate between Galvanic cell and Electrolytic cell.
viii. Calculate the oxidation number of sulphur in H_2SO_4 and H_2S .
ix. Write down electrochemical equations involved in the electrolysis of molten sodium chloride.

(Turn Over)