QP CODE: 26800172

26800172

Reg No : .....

Name : .....

INTEGRATED M.Sc. DEGREE EXAMINATION, DECEMBER 2025

First Semester

INTEGRATED M.Sc. BASIC SCIENCE-PHYSICS

COMPLEMENTARY - IPH1CM06 - CHEMISTRY- I BASIC CONCEPTS IN CHEMISTRY

2021 Admission Onwards

63BD4AAD

Time: 3 Hours Weightage: 30

Part A (Short Answer Questions)

*Answer any **eight** questions.*

*Weight **1** each.*

1. Which type of metals are used in photoelectric cells?
2. Define ionic bond.
3. Covalent compounds exhibit isomerism, whereas ionic compounds do not. Why?
4. Distinguish between molality and molarity.
5. State and explain Lowry-Bronsted concept of acids and bases.
6. What are pK_a and pK_b?
7. What are the first aid procedures that can be given for alkali burns happened?
8. Define accuracy.
9. What is sublimation? Name any two substances that can be purified by sublimation.
10. What are the advantages of chromatography?

(8×1=8 weightage)

Part B (Short Essay/Problems)

*Answer any **six** questions.*

*Weight **2** each.*

11. What are the merits of Bohr atom model?
12. Based on Pauli's exclusion principle, show that the maximum number of electrons that can be accommodated in an orbital is 8, when n=2.
13. Discuss the hybridization and geometry of ethylene molecule.
14. Discuss the variation of atomic radius along group and period.

15. State and explain solubility product. The solubility of silver chloride in water at 25^0C is $0.00179gl^{-1}$. Calculate the solubility product at 25^0C?

16. What are the basic requirements for a volumetric analysis?

17. How solvent extraction is useful as a separation method?

18. What are the advantages of HPLC?

(6×2=12 weightage)

Part C (Essay Type Questions)

*Answer any **two** questions.*

*Weight **5** each.*

19. Differentiate between an orbit and orbital. Discuss the shapes of s, p and d orbitals respectively.

20. What are the rules for assigning oxidation number? Explain with an example.

21. Give a brief description of indicators used in various types of titrations.

22. Discuss the principles and applications of gas chromatography.

(2×5=10 weightage)