QP CODE: 25800348

25800348

Reg No : .....

Name : .....

INTEGRATED MSC DEGREE EXAMINATION, JANUARY 2025

First Semester

INTEGRATED MSC BASIC SCIENCE-PHYSICS

Complementary - IPH1CM06 - CHEMISTRY- I BASIC CONCEPTS IN CHEMISTRY

2021 Admission Onwards

CFBF2C57

Time: 3 Hours Weightage: 30

Part A (Short Answer Questions)

*Answer any **eight** questions.*

*Weight **1** each.*

1. Give the equation for the wavelength of matter waves.
2. What is Hund's rule of maximum multiplicity?
3. Name any two factors affecting lattice energy.
4. What will be the H^+ ion concentration of a solution of pH 4.2?
5. How can you find dissociation constant of an acid?
6. What is meant by solubility of a substance?
7. What types of filter papers are used for the precipitation of very fine and gelatinous precipitates?
8. Give two examples of substances used as primary standard.
9. Give an example of a precipitation reaction.
10. What is meant by a cation exchanger?

(8×1=8 weightage)

Part B (Short Essay/Problems)

*Answer any **six** questions.*

*Weight **2** each.*

11. What is photoelectric effect? How is it explained on the basis of quantum theory?
12. Sketch the shapes of various d orbitals.
13. What types of shapes are associated with sp^3 and sp^2 hybridisation? Illustrate with examples.
14. Define mole. A sample of iron has a mass of 5.6g. Calculate (i) the number of moles of iron atoms present and (b) the number of iron atoms in the sample.

15. Distinguish between normality and molarity of a solution. Calculate the normality and molarity of oxalic acid solution obtained by dissolving 63g of oxalic acid in one litre of water.

16. Write a note on precision and accuracy.

17. Describe briefly the principle of fractional distillation.

18. Briefly explain the types of stationary and mobile phases used in GC.

(6×2=12 weightage)

Part C (Essay Type Questions)

*Answer any **two** questions.*

*Weight **5** each.*

19. Discuss valence bond theory in detail using suitable examples. What are its limitations?

20. Define modern periodic law and periodicity of elements. What is the cause of periodicity of elements?

21. What are the common errors in quantitative analysis? Explain the methods for the elimination or minimization of errors.

22. Write notes on (i) R_f value (ii) Adsorbents (iii) Thin layer chromatography.

(2×5=10 weightage)