QP CODE: 23507141

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Reg No : .....

Name : .....

INTEGRATED MA DEGREE EXAMINATION, OCTOBER 2023

Third Semester

INTEGRATED MSC BASIC SCIENCE-PHYSICS

COMPLEMENTARY - IPH3CM05 - CHEM ISTRY- III FUNDAMENTALS OF PHYSICAL CHEMISTRY

2021 Admission Onwards

1113EA3F

Time: 3 Hours Weightage: 30

Part A (Short Answer Questions)

*Answer any **eight** questions.*

*Weight **1** each.*

1. Differentiate between crystalline solids and amorphous solids.
2. What is an inversion centre?
3. What is surface tension?
4. Give the equation for the determination of molecular mass from osmotic pressure and explain the terms.
5. Derive Boyle's law.
6. What is adsorption?
7. What are lyophilic colloids?
8. What is meant by Helmholtz electrical double layer?
9. Determine the number of components and variance of the following system: ice - water - water vapour.
10. What is the basis of Pattinson's process?

(8×1=8 weightage)

Part B (Short Essay/Problems)

*Answer any **six** questions.*

*Weight **2** each.*

11. Discuss the band theory of solids.

12. Give a brief account of classification of magnetic materials.

13. Explain Henry's law and its applications.

14. Write a note on van der Waals equation of state.

15. Discuss Langmuir adsorption isotherm.

16. What is a colloid? Discuss the essential differences between lyophilic and lyophobic colloids.

17. Explain the application of colloids.

18. Discuss the applications of Nernst distribution law.

(6×2=12 weightage)

Part C (Essay Type Questions)

*Answer any **two** questions.*

*Weight **5** each.*

19. Explain: a) Weiss and Miller indices b)Bravais lattices

20. Write a note on liquid crystals.

21. Write short notes on: a) Electrophoresis and its applications b) Tyndall effect and Brownian movement

22. What is a condensed system? Explain how the phase rule is modified for applying to such a system. Draw a general diagram for a simple eutectic system A–B.

(2×5=10 weightage)