QP CODE: 24805708

24805708

Reg No : .....

Name : .....

INTEGRATED MSC DEGREE EXAMINATION, OCTOBER 2024

Third Semester

INTEGRATED MSC BASIC SCIENCE-PHYSICS

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

2021 Admission Onwards

36788784

Time: 3 Hours Weightage: 30

Part A (Short Answer Questions)

*Answer any **eight** questions.*

*Weight **1** each.*

1. What are semiconductors? Give two examples.
2. How many mirror planes does a water molecule have? What kind are they?
3. What are dispersion forces?
4. Define cryoscopic constant.
5. Calculate the average velocity of CO molecules at S.T.P.
6. Mention two important factors that influence adsorption of gases on solid surfaces.
7. What are micelles?
8. What is meant by delta formation?
9. Define the term 'number of components' as applied to phase rule.
10. State Nernst's Distribution Law.

(8×1=8 weightage)

Part B (Short Essay/Problems)

*Answer any **six** questions.*

*Weight **2** each.*

11. Write a note on types of crystals.
12. What are Miller indices? Explain how the Miller indices of a lattice plane are calculated.

13. What are the structural features of nematic and cholesteric liquid crystals?

14. One mole of water vapour is confined to a 20 litre flask at 27^0C. Calculate its pressure using van der Waals equation and ideal gas equation.

15. Derive the Freundlich adsorption isotherm from empirical arguments.

16. Describe the classification of colloids.

17. Discuss the purification methods of colloids.

18. Write a note on solid solutions.

(6×2=12 weightage)

Part C (Essay Type Questions)

*Answer any **two** questions.*

*Weight **5** each.*

19. Discuss the magnetic properties of solids.

20. Discuss the factors affecting the solubilty of gases in liquids.

21. Explain a) origin of charge on colloids (b) Electrical double layer c) Zeta potential

22. Give an example for a simple eutectic system and briefly discuss its salient features with the help of its phase diagram.

(2×5=10 weightage)