QP CODE: 25022635

25022635

Reg No : .....

Name : .....

M.Sc DEGREE (CSS) SPECIAL REAPPEARANCE EXAMINATION, APRIL 2025

Third Semester

M.Sc INDUSTRIAL CHEMISTRY

ELECTIVE - CH900301 - CHEMISTRY OF ADVANCED MATERIALS

2020 ADMISSION ONWARDS

80DF3AFC

Time: 3 Hours Weightage: 30

Part A (Short Answer Questions)

*Answer any **eight** questions.*

*Weight **1** each.*

1. What is the significance of microstructure in Material science and Engineering?
2. Why do we use PET plastic to make carbonated beverage Bottles?
3. Write a short note on nanodimensional materials.
4. What are nanorods?
5. What are liquid crystal polymers?
6. What are glass ceramics?
7. Explain the term critical magnetic field in superconductor.
8. What are the features of a fiber reinforced composite ?
9. Briefly explain the Thin Film Deposition technique.
10. Explain about Magnetic Field and magnetization .

(8×1=8 weightage)

Part B (Short Essay/Problems)

*Answer any **six** questions.*

*Weight **2** each.*

11. Explain about the classification of materials based on structure.
12. Write a short note on the Activation energy of diffusion.
13. Explain the difference between about Single-wall carbon nanotubes (SWCNTs) and Multiple walled carbon nanotubes (MWCNTs) .
14. What is the difference between intrinsically conducting and extrinsically conducting polymers ?
15. Briefly discuss the synthesis and processing of crystalline ceramics.

16. Explain the term superconductivity? Discuss about the different types of superconductors.

17. Explain about the features of intercalated and Exfoliated nano composites.

18. What are perovskites ? Explain their applications.

(6×2=12 weightage)

Part C (Essay Type Questions)

*Answer any **two** questions.*

*Weight **5** each.*

19. Explain in detail about the various methods involved during the synthesis of Nanoparticles ? Write a short note on Graphenes.

20. Explain the properties and applications of Polymers with piezoelectric, pyrroelectric and ferroelectric properties .

21. Explain about the features and applications of (1) Nanocomposites (2) Bionanocomposites?

22. (1) Discuss the Band Structure of Solids.
    (2) Explain the Integrated Circuit Processing technique.

(2×5=10 weightage)