M.Sc. DEGREE EXAMINATION,APRIL 2020
I Year II Semester
Nano Chemistry

Time : 3 Hours **Max.marks :75**

Section A $(10 \times 2 = 20)$ Marks

Answer any **TEN** questions

1. State Moore's law.
2. Briefly write about the strength of nanomaterials.
3. What is Quantum confinement?
4. What are capping agents?
5. What are nanoshells? Give an Example.
6. How XRD is used for the study of nanoparticles?
7. What are the advantages of Scottky field emitter?
8. What is the basic concept behind STM?
9. List any two differences between SEM and AFM.
10. What is NEMS?
11. List any two applications of nanomaterials in controlling pollution.
12. What are self assembled monolayers?

Section B $(5 \times 5 = 25)$ Marks

Answer any **FIVE** questions

13. Write short notes on homogeneous nucleation.
14. Explain the synthesis of nanomaterials using chemical Vapour deposition.
15. Discuss the properties of fullerenes.
16. Explain the theory behind PL spectroscopy.
17. Write briefly about semiconductor nanoparticles.
18. What are nanocomposites? Explain any three uses.
19. List out any five important applications of nanotechnology in medical field.

Section C $(3 \times 10 = 30)$ Marks

Answer any **THREE** questions

20. Discuss the chemical and mechanical properties of nanomaterials with examples.
21. Explain in detail about the synthesis, properties and uses of CNT.
22. Explain the theory and technique used for the characterization of nanomaterials using TEM.
23. Explain in detail about Atomic Force Microscopy. Discuss its advantages and disadvantages.
24. Discuss the application of nanotechnology in

    (a.) Agriculture.

    (b.) Food and cosmetics.

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