R8404	Sub. Code
	538507

M.Sc. DEGREE EXAMINATION, APRIL – 2023

Fourth Semester

Chemistry (Specialization in Nanoscience and Technology)

NANOCOMPOSITES

(CBCS – 2019 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. How nanocomposites prepared by solution casting method?

2. Why nanocomposites are better than Composites?

3. Mention the importance of aluminium based nanocomposites.

4. What are glass-metal nanocomposites? Give examples.

5. Define polymer nanocomposites.

6. Write the uses of polymer-CNT composites.

7. Mention the composition of spider silk.

8. What are biopolymer composites?

9. What are conducting polymer nanocomposites? Give examples.

10. Write the properties improved by electroactive nanocomposites in supercapacitors

Part B (5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Explain the multifunctional properties of nanocomposites.

Or

(b) Discuss the processing techniques of nanocomposites.

12. (a) Explain the functionality of ZrO_2 based metal nanocomposites.

Or

(b) Write a note on core-shell structured nanocomposites.

13. (a) How polymer nanocomposites prepared by in-situ polymerization method?

Or

(b) Discuss briefly about Copolymer-based nanocomposites.

14. (a) Discuss the preparation of organic-inorganic nanocomposites.

Or

(b) Write a note on biomimetic nanocomposites.

15. (a) Write a note on textile-reinforced composites.

Or

(b) Explain the applications of nanocomposites in drug delivery.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Give a detailed account on super hard nanocomposites.

17. Explain the dimension analysis and electrical property of fractal-based nanocomposites.

18. Discuss about polymer clay nanocomposites and its industrial applications.

19. Write the biomedical applications of synthetic nanocomposites.

20. Write the electrical applications of polymer nanocomposites.

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