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M.Sc. DEGREE EXAMINATION, APRIL 2018.

Material Science and Nanotechnology

FOURTH SEMESTER

Paper III — APPLICATIONS OF NANOMATERIALS AND NANOTECHNOLOGY

Time : Three hours

Maximum : 75 marks

(No additional sheet will be supplied)

PART A — (5 × 3 = 15 marks)

Answer any FIVE questions.

Each questions carries 3 marks.

Each answer should not exceed 1 page.

1. Write a short note on surface micromachining.
2. Write about the magnetoresistance applications.
3. Write a short note on importance of sensors.
4. Give a short note on optical sensors.
5. Explain about nanomaterials and write its advantages.
6. Give a note on nanomaterials as adsorbent.
7. What is Emulsification?
8. Give a note on nanoparticles (Polysorbate) for blood brain barrier.

PART B — (4 × 15 = 60 marks)

Answer ALL questions.

Each answer carries 15 marks.

Each answer should not exceed 6 pages.

9. What is meant by Tunneling effect and explain about photonic crystals?

Or

10. Explain about interlayer exchange coupling and giant magnetoresistance.

11. Discuss about the Gas sensing with nanostructured thin films and write its applications.

Or

12. Write in detail about Enabled sensors.

13. Explain about nanomaterials for membrane process.

Or

14. Explain about electrochemical sensors based on nanomaterials for environmental monitoring.

15. Write the preparation of nanomaterials in Supercritical fluid technology.

Or

16. Discuss briefly about drug loading and also explain drug release characteristics.

