

SEME (NEW)

G 1721

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Reg. No.....

Name.....



B.TECH. DEGREE EXAMINATION, MAY 2015

Eighth Semester

Branch : Mechanical Engineering/Production Engineering

ME 010 805 G03/PE 010 805 G03—NANO TECHNOLOGY—Elective – IV (ME, PE)

(New Scheme—2010 Admission onwards)

[Regular/Supplementary]

Time : Three Hours

Maximum : 100 Marks

Part A

Answer all questions.

Each question carries 3 marks.

1. Why nano technology is needed ?
2. What is the need for nano tribology characterization ?
3. What is bending test ?
4. Explain what is MEMS ?
5. What are the applications of micro actuators ?

(5 × 3 = 15 marks)

Part B

Answer all questions.

Each question carries 5 marks.

6. Explain nano materials.
7. Explain thin films.
8. Explain SEM.
9. Explain nano boundary lubrication.
10. Explain NEMS. How they are different from MEMS ?

(5 × 5 = 25 marks)

Part C

Answer all questions.

Each question carries 12 marks.

11. Explain the structure and synthesis of carbon nano tubes.

Or

12. Explain the structure of nano materials.

Turn over

13. Explain nano tribology characterization.

Or

14. Distinguish the properties of thin films and solid surfaces.

15. Explain the indentation and scratch tests.

Or

16. With a neat sketch, explain mechanical milling process for synthesis of nano particles.

17. Explain kinetics and energetic in nano lubrication.

Or

18. Explain nano technology is advantageous in data storage. Discuss with limitations.

19. Explain how micro actuators are used in storage systems.

Or

20. Explain the applications of MEMS materials.

(5 × 12 = 60 marks)

