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10NT61

Sixth Semester B.E. Degree Examination, June/July 2017
Synthesis of Nanomaterials

Time: 3 hrs.

Max. Marks:100

Note: Answer FIVE full questions, selecting at least TWO questions from each part.

PART – A

- 1 a. What is the principle of sol-gel process? Explain synthesis of nano-structured materials by sol-gel method. (08 Marks)
- b. Write a note on mechanical milling. (05 Marks)
- c. Explain inert gas condensation technique with neat diagram. (07 Marks)
- 2 a. Explain laser pyrolysis with example. (08 Marks)
- b. Explain in brief physical vapor deposition method. (06 Marks)
- c. Discuss Langmuir-Blodgett technique. (06 Marks)
- 3 a. What is nanomanipulation? Explain nanolithography. Mention its applications. (10 Marks)
- b. Write a note on sol-gel lithography. (10 Marks)
- 4 a. Discuss the VLS growth of nanowires with example. (08 Marks)
- b. Discuss the role of precursors and catalysts in VLS growth. (06 Marks)
- c. Explain CVD technique. (06 Marks)

PART – B

- 5 a. Explain the process of template filling. (08 Marks)
- b. Write a note on:
 - (i) Reverse micelles method.
 - (ii) Electrophoretic deposition. (12 Marks)
- 6 a. Explain the following:
 - (i) Co-precipitation method. (12 Marks)
 - (ii) Arrested precipitation method. (08 Marks)
- b. Discuss chemical reduction method. (08 Marks)
- 7 a. Discuss electrochemical synthesis of nanomaterials. (08 Marks)
- b. What is sonochemical synthesis? Explain. (08 Marks)
- c. Distinguish between hydrothermal and solvothermal processes. (04 Marks)
- 8 a. Explain solution combustion process. (06 Marks)
- b. Write a note on chemical vapor condensation. (08 Marks)
- c. Discuss the fundamental aspects of SLS process. (06 Marks)

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Important Note : 1 On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.