

CBCS Scheme

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15NT43

Fourth Semester B.E. Degree Examination, June/July 2018 Synthesis and Processing Techniques

Time: 3 hrs.

Max. Marks: 80

Note: Answer FIVE full questions, choosing one full question from each module.

- Module-1**
- 1 a. With a neat schematic diagram, explain the Langmuir Blodgett technique in detail for thin film making. (08 Marks)
b. Briefly explain the working of MBE along with neat schematic diagram. (08 Marks)

OR

- 2 a. With neat schematic diagram, explain the working process of Electro Spinning process in detail. (10 Marks)
b. Explain the working process of Laser pyrolysis, with neat diagram. (06 Marks)

Module-2

- 3 a. Define Sol and Gel and explain detail about sol – gel along with proper diagram of sol – gel options. (10 Marks)
b. Explain the process of solution combustion method along with proper flow chart in detail. (06 Marks)

OR

- 4 a. Write a short notes on Supercritical fluid and solvo thermal process of synthesizing nanoparticles. (08 Marks)
b. Explain detailed about co-precipitation and arrested precipitation methods for synthesizing nanoparticles. (08 Marks)

Module-3

- 5 a. Explain in detail about growth mechanism of solution liquid solid process. (10 Marks)
b. Write short notes on Flame Spray Pyrolysis method. (06 Marks)

OR

- 6 a. Explain briefly about VLS growth of Nano wires and control the size of the Nano wires. (10 Marks)
b. Explain in detail about gas condensation working process. (06 Marks)

Module-4

- 7 a. Draw Electron beam Lithography set up and explain working process in detail. (10 Marks)
b. Define Nano lithography and explain in brief about nano Lithography based on AFM. (06 Marks)

OR

- 8 a. Define Self – assembly and explain the process of self – assembly of nano particles and nano wires. (08 Marks)
b. Write short notes on Oxidation , Metallization and Mask and its applications. (08 Marks)

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank space. 2. The number of questions asked in the question paper is 10. The number of questions to be attempted is 5. 3. The marks for each question are given in the right hand margin. 4. The total marks for the paper are 80. 5. The duration of the examination is 3 hours. 6. The question paper is in English. 7. The question paper is in English. 8. The question paper is in English. 9. The question paper is in English. 10. The question paper is in English.

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Module-5

- 9 a. Explain the process of developing photo catalyst inserted into surface of porous alumina silicate. (10 Marks)
b. Explain Instantaneous nano foaming method for fabrication of closed porosity silica particle. (06 Marks)

OR

- 10 a. Explain the Fabrication technique of organic nano crystals and their optical properties and materialization. (10 Marks)
b. Explain briefly about surface modification of inorganic nano particles by organic functional groups. (06 Marks)
