

Synthesis and Processing Techniques VTU CBCS Question Paper Set 2018

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CBCS Scheme

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15NT43

Fourth Semester B.E. Degree Examination, June/July 2017

Synthesis and Processing Techniques

Time: 3 hrs.

Max. Marks: 80

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

Module-1

- 1 a. Mention different types of CVD techniques. explain in detail about CVD method including both hot wall and cold wall set up. (10 Marks)
b. Write a short note on electric explosion of wires to get nano-particles. (06 Marks)

OR

- 2 a. With a neat labeled diagram explain the Langmuir Blodgett techniques in detail for thin film making. (08 Marks)
b. Briefly explain the working of MBE along with neat schematic diagram. (08 Marks)

Module-2

- 3 a. Explain briefly about the formulation of micelles and inverse micelles with proper diagram along with possibilities of different shapes formed by micelles/inverse micelles. (10 Marks)
b. Explain the process of solution combustion method along with proper flow chart in detail. (06 Marks)

OR

- 4 a. Write short notes on supercritical fluid and solvothermal process of synthesizing nanoparticles. (08 Marks)
b. Explain the working process of photochemical synthesis method with an example of nanoparticle synthesizing in detail. (08 Marks)

Module-3

- 5 a. Explain in detail the growth mechanism and Kinetic and rate determining steps in VLS method. (10 Marks)
b. Write short notes on Flame spray pyrolysis. (06 Marks)

OR

- 6 a. Explain the process involved in the chemical condensation with neat labeled CVC reactor. (08 Marks)
b. Write a short note on SLS growth and stress induced recrystallization in brief. (08 Marks)

Module-4

- 7 a. Explain the writing mechanism involved in a dip pen techniques. (06 Marks)
b. Explain about soft lithography replication of patterns done in different ways. (10 Marks)

OR

- 8 a. Define self assembly and explain the process of self assembly of nanoparticles and nanowires. (08 Marks)
b. Write short note on oxidation and metallization and mask and its application. (08 Marks)

Module-5

- 9 a. Explain in detail about nanotechnology assisted cosmetics. (10 Marks)
b. Explain briefly about surface modification of inorganic nanoparticles by organic functional groups. (06 Marks)

OR

- 10 a. Explain instantaneous nano foaming method for fabrication of closed porosity silica particles. (10 Marks)
b. Explain the fabrication technique of organic nanocrystals and their optical properties and materialization. (06 Marks)

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