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## Fifth Semester B.E. Degree Examination, Dec.2019/Jan.2020 Synthesis of Nanomaterials

Time: 3 hrs.

Max. Marks: 80

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

### Module-1

- 1 a. Define Metal oxide and Semiconductor nanoparticles. Explain the procedure involved in the synthesis of CdO and AgO nanoparticles. (10 Marks)
- b. Discuss any two methods involved in synthesis of  $Al_2O_3$  nanoparticles. Mention applications. (06 Marks)

OR

- 2 a. Describe synthesis of Semiconductor nanoparticles CdS and  $TiO_2$  nanostructures. Mention their applications. (08 Marks)
- b. Briefly, explain potential uses of Semiconductor nanoparticles. (08 Marks)

### Module-2

- 3 a. Define Quantum Dots. Add a note on advantages, disadvantages and applications of Quantum dots in Bio-imaging with an example. (10 Marks)
- b. How toxicity of CdSe Quantum dot can be reduced? Explain with an example. (06 Marks)

OR

- 4 a. Explain synthesis of metal nanoparticles Fe and Pt nanoparticles by chemical method. (08 Marks)
- b. Write a note on the application of Ag and Au nanoparticles. (08 Marks)

### Module-3

- 5 a. Write a short note on oxide and non-oxide nanoparticles with an example each. (08 Marks)
- b. Explain the synthesis of magnetite nanoparticles. (08 Marks)

OR

- 6 a. Explain potential uses of oxide and non oxide nanoparticles. (10 Marks)
- b. What are magnetosomes? Write a note on synthesis of magnetosomes by biological method. (06 Marks)

### Module-4

- 7 a. Define Nanoporous materials. Add a note on advantages, disadvantages and applications of nanoporous materials. (08 Marks)
- b. Describe the synthesis of Aluminium Phosphates and iron phosphates. (08 Marks)

OR

- 8 a. Explain the synthesis of cobalt and Manganese phosphates. (08 Marks)
- b. Write a note on synthesis of phosphates of Gallium and Indium. (08 Marks)

### Module-5

- 9 a. Describe the steps involved in green synthesis of nanoparticles. (10 Marks)
- b. Write a note on advantages, disadvantages and applications of the biological methods involved in the synthesis of nanoparticles. (06 Marks)

OR

- 10 a. Describe the steps involved in the synthesis of nanoparticles by making use of Fungi. (08 Marks)
- b. Write a short note on magnetotactic bacteria for natural synthesis of magnetic nanoparticles. Mention their applications. (08 Marks)

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Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.  
2. Any revealing of identification, appeal to evaluator and /or equations written eg, 42+8 = 50, will be treated as malpractice.