CBCS SCHEME

USN | | | | | | | | | | |

18NT36

Third Semester B.E. Degree Examination, July/August 2021

Synthesis and Processing of Nanomaterials

Time: 3 hrs. Max. Marks: 100

Note: *Answer any FIVE full questions.*

1 a. Explain ball milling synthesis of nanoparticles. **(10 Marks)**
b. Write a note on Langmuir-Blodget method. **(10 Marks)**

2 a. Explain radio frequency plasma method of synthesis of nanomaterials. Mention its advantages and applications. **(06 Marks)**
b. Write a note on plasma arc technique. **(04 Marks)**
c. Explain ion sputtering method. **(10 Marks)**

3 a. Write a note on: (i) Chemical precipitation method (ii) Co-precipitation method (iii) Arrested precipitation method. **(10 Marks)**
b. Discuss how microemulsions used for synthesis of nanoparticles. **(10 Marks)**

4 a. With synthesis of Ag nanoparticles as example, describe about chemical reduction method and photochemical synthesis of chalcogenides. **(10 Marks)**
b. Explain hydrothermal synthesis, and solution combustion synthesis of nanoparticles. **(10 Marks)**

5 a. Explain spray pyrolysis and flame spray pyrolysis methods of synthesis of nanoparticles. **(10 Marks)**
b. Explain the gas condensation process. **(10 Marks)**

6 a. Describe VLS method. **(10 Marks)**
b. Explain chemical vapour condensation process. **(06 Marks)**
c. Explain SLS method. **(04 Marks)**

7 a. Explain microbial synthesis of nanoparticles. **(10 Marks)**
b. Explain the synthesis of nanoparticle using Fungi. **(10 Marks)**

8 a. Discuss about the procedure of synthesis of nanoparticles by actinomycetes. **(10 Marks)**
b. Write a note on synthesis of nanoparticles using protein and DNA templates. **(10 Marks)**

9 a. Brief about surface modifications of inorganic nanoparticles by organic functional groups. **(10 Marks)**
b. Explain the fabrication technique of organic nanocrystals. **(10 Marks)**

10 a. Explain the instantaneous nano foaming method for fabrication of closed porosity silica particles. **(10 Marks)**
b. Discuss about nanoparticles in emulsion, nanoparticles in dispersed system and functional nanocoating for their applications in cosmetics. **(10 Marks)**

* * * * *