CBCS SCHEME

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

18NT36

Third Semester B.E. Degree Examination, July/August 2022
Synthesis and Processing of Nanomaterials

Time: 3 hrs. Max. Marks: 100

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

Module-1

1 Write a note on following methods used for the synthesis of nanomaterials:
a. Ball Milling (10 Marks)
b. Plasma arc technique. (10 Marks)

OR

2 Explain how following methods are employed for the synthesis of nanomaterials:
a. Chemical Vapour Deposition (10 Marks)
b. Electro Spinning (10 Marks)

Module-2

3 a. Describe the use of co-precipitation and arrested precipitation methods for the synthesis of nanomaterials. (10 Marks)
b. With the help of a neat diagram and example explain the Sol-gel method employed for synthesis of nanomaterials. (10 Marks)

OR

4 Write note on following :
a. Supercritical fluid process (10 Marks)
b. Solution combustion process. (10 Marks)

Module-3

5 Write note on :
a. Spray Pyrolysis method for the synthesis of nanomaterials. (10 Marks)
b. VLS Growth of nano wires. (10 Marks)

OR

6 a. Discuss the fundamental aspects of VLS and SLS processes. (10 Marks)
b. Write note on stress induced recrystallisation. (10 Marks)

Module-4

7 a. Explain how magnetotactic bacteria is used for the synthesis of magnetic nanoparticles. (10 Marks)
b. Discuss the role of plants in nanoparticle synthesis with suitable example. (10 Marks)

OR

8 Write note on :
a. Synthesis of nanoparticles using proteins and DNA templates (10 Marks)
b. Actinomycetes for nanoparticle synthesis. (10 Marks)

Module-5

9 a. Explain the role of biodegradable PLGA nanospheres in development of functional skin care products. **(10 Marks)**

b. Explain the process of incorporation of photocatalyst on to the surface of porous aluminosilicate and its advantages. **(10 Marks)**

OR

10 a. How instantaneous nano foaming method is used to fabricate closed - porosity silica particles? Explain. **(10 Marks)**

b. Discuss about the surface modification of inorganic nanoparticles by organic functional groups. **(10 Marks)**

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