

**B. TECH
(SEM V) THEORY EXAMINATION 2022-23
NANO BIOTECHNOLOGY**

Time: 3 Hours

Total Marks: 100

Note: 1. Attempt all Sections. If require any missing data, then choose suitably

SECTION A

2 x 10 = 20

1. Attempt all questions in brief.

- a. Comment upon Bottom-Up approach.
- b. What are nanomaterials? Do they exist in nature?
- c. What are Bio sensors? Give example
- d. Discuss applications of nano-particulate delivery systems
- e. Discuss Nano-powders
- f. What are the four types of artificial nanomaterials?
- g. What is the main problem with nanotechnology?
- h. Which nanoparticles are used in drug delivery?
- i. Give one example for semiconducting nano-wires.
- j. Enlighten the term nano biopolymers

SECTION B

2. Attempt any three of the following:

- a. What are the two approaches in the fabrication of nanomaterials? Why silicon is used as a microfabricator?
- b. How synthesis of gold nanoparticles could be done with Nanobiotechnology? Discuss the application of gold nano particles as a drug delivery tool.
- c. Comment upon carbon nanotubes. Discuss the properties and applications of carbon nanotubes in detail.
- d. What are the key goals for nanomedicine? Discuss the impact of nanotechnology on drug delivery systems.
- e. What are Biochips? Discuss different types of biochips with their specific advantages.

SECTION C

3. Attempt any one part of the following:

- a. What is the principle of AFM? What kind of samples can be analyzed by AFM? Discuss advantages of AFM.
- b. How Synthesis of zinc oxide nano particles could be done with Nanobiotechnology? Discuss the applications of zinc oxide nano particles as a therapeutic tool.

4. Attempt any one part of the following:

- a. What do you understand by Targeted drug delivery? Discuss various ideal drug delivery vehicles used for targeted drug delivery.
- b. What are biopolymers? Discuss their role in ophthalmologic and orthopedic industry.