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# 21BTH4E4AL

Sl. No.

## M.Sc. IV Semester Degree Examination, Sept./Oct. - 2024

## BIOTECHNOLOGY

### Nanobiotechnology

### (NEP)

Time : 3 Hours Maximum Marks : 70

***Note :*** *(i) Answer **any five** of the following questions with Question No.1 **(Q1) compulsory**, each question carries **equal** marks.*

*(ii) Draw neat diagrams wherever necessary.*

**1.** (a) Discuss on classification of nanomaterials with suitable examples. **10**
(b) Discuss on physico-chemical characteristics of nanoparticles. **4**

**2.** (a) Brief about bottom-up and top-down approaches of nanomaterial synthesis. **4**
(b) Explain high energy ball milling and melt mixing methods for synthesis of nanomaterials. **10**

**3.** Explain in detail about working principle of UV-visible spectroscopy and mention its applications. **14**

**4.** (a) Brief about various types of biological nanomaterials. **4**
(b) Discuss in detail about Protein-based nanostructures and their applications. **10**

**5.** (a) Explain DNA sensors and their applications. **7**
(b) Explain working principle, types and applications of biosensors. **7**

**6.** (a) Discuss the Vacuum evaporation and ion plating methods of synthesis. **10**
(b) Brief on application of FTIR spectroscopy for analysis of nanomaterials. **4**

**7.** (a) Discuss in detail about biocompatible nanomaterials and their biological applications. **7**
(b) Explain Protein sensors and their applications. **7**

**8.** Discuss in detail about biological methods of nanomaterial synthesis and their advantages and disadvantages. **14**

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