GIET UNIVERSITY, GUNUPUR – 765022

B. Tech (Sixth Semester Regular) Examinations, May – 2024

21BBTPE36002 - Nanobiotechnology

(Biotechnology)

Time: 3 hrs Maximum: 70 Marks

(The figures in the right hand margin indicate marks)

PART – A **(2 x 5 = 10 Marks)**

Q.1. Answer ***ALL*** questions	CO #	Blooms Level
a. How size matters for the functionality of nanomaterials?	CO1	K2
b. Differentiate between Top-down and Bottom-up approach.	CO2	K4
c. Mention the function of EDX for nanomaterial analysis.	CO2	K3
d. Write the applications of polymeric biomaterials.	CO3	K2
e. Define DNA origami and its use.	CO4	K1

PART – B **(15 x 4=60 Marks)**

Answer ***ALL*** questions	Marks	CO #	Blooms Level
2. a. Discuss the various interdisciplinary applications of nanomaterials.	8	CO1	K2
b. Explain the various challenges and future prospects of nanotechnology.	7	CO1	K2
(OR)			
c. Explain any four properties of nanomaterials.	8	CO1	K2
d. "Nanotechnology exists in nature'. Justify the statement with various examples.	7	CO1	K3
3.a. Illustrate the principle of TEM with diagram.	8	CO2	K3
b. Briefly discus the process of PVD.	7	CO2	K3
(OR)			
c. Describe with diagram about the working principle of AFM for analysis of nanostructure.	7	CO2	K2
d. Discuss about the laser ablation and spray pyrolysis.	8	CO2	K2
4.a. How microbes can be used to synthesize the nanoparticles? Explain.	8	CO3	K2
b. Discuss with examples of various nano-antimicrobials.	7	CO3	K2
(OR)			
c. Why surface functionalization of nanomaterials is required? Explain in detail with diagram.	8	CO3	K3
d. How the Immobilized nanoparticles can be used for water disinfection and biopesticides delivery? Explain.	7	CO3	K3
5.a. What is nanotoxicity? Discuss the types of toxicity and toxic effects of nanomaterials?	7	CO4	K1
b. Give the different types of Biopolymers with examples and their applications.	8	CO4	K2
(OR)			
c. Write notes on DNA nanotechnology.	7	CO4	K3
d. Define liposome. How lipid nanoparticles used for drug delivery applications and write its advantages and disadvantages?	8	CO4	K1

--- End of Paper ---