Gandhi Institute of Engineering and Technology University, Odisha, Gunupur
(GIET University)

B. Tech (Sixth Semester – Regular/Supplementary) Examinations, April 2025

21BBTPE36021/22BBTPE36021 - 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 in nano scale than the bulk materials?	CO1	K3
b.	Differentiate between top-down and bottom-up approaches in nanomaterial synthesis.	CO2	K2
c.	How EDX has been used to characterized the nanomaterials?	CO2	K2
d.	How green method of nanoparticle synthesis is advantageous than other methods?	CO3	K2
e.	Give the examples of magnetic nanoparticles and its importance.	CO4	K1

PART – B **(15 x 4 = 60 Marks)**

Answer ***All*** the questions

		Marks	CO #	Blooms Level
2. a.	Discuss the properties of nanomaterials.	8	CO1	K2
b.	Discuss the main challenges in the field of nanotechnology and suggest possible future prospects.	7	CO1	K1
	(OR)			
c.	Based on dimension, how nanomaterials are classified? Discuss with examples.	8	CO1	K1
d.	Explain about the surface effect of nanomaterials and quantum confinement.	7	CO1	K2
3.a.	Describe the steps and process of PVD with suitable diagram.	8	CO2	K2
b.	How UV-Vis Spectroscopy is used to analyse the nanomaterials? Give its principle.	7	CO2	K3
	(OR)			
c.	Give the principle and mechanism of using TEM for characterization of nanomaterials.	8	CO2	K3
d.	How self-assembled monolayer is important? Give its mechanisms.	7	CO2	K2
4.a.	Give the advantages of green synthesis of nanoparticles and explain the plant mediated green synthesis of nanoparticles?	8	CO3	K1
b.	How Immobilized nanoparticles are used for biopesticides delivery applications? Give the mechanisms.	7	CO3	K2
	(OR)			
c.	Why surface functionalization of nanomaterials is important? Give its mechanism?	8	CO3	K3
d.	Explain in details about Nano-antimicrobials with suitable examples.	7	CO3	K2
5.a.	Classify and explain about the different types of Biopolymers and their uses.	8	CO4	K1
b.	How lipid nanoparticles are used for drug delivery? Give its mechanism and advantages.	7	CO4	K3
	(OR)			
c.	Write notes on Polymeric biomaterials.	8	CO4	K1
d.	Discuss the different DNA based nanostructure with examples.	7	CO4	K2

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