QP Code:RD22BTECH055 | Reg. No | | | | | | | | | | | AY 22

GIET UNIVERSITY, GUNUPUR – 765022

B. Tech (Third Semester Regular) Examinations, December – 2023

22BBTPC23001 – Fundamentals of Biotechnology

(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. Name three membrane-bound organelles and write down their functions.	CO1	K3
b. What is lysosomes and explain its role in cellular waste disposal?	CO1	K2
c. How is the information encoded in the structure of DNA?	CO2	K2
d. What is the function of phosphatases in gene cloning?	CO3	K3
e. What is bioleaching? How do microorganisms play a role in this process?	CO4	K2

PART – B **(15 x 4 = 60 Marks)**

Answer ***ALL*** questions	Marks	CO #	Blooms Level
2. a. Discuss the dynamic nature of the cell membrane, emphasizing the fluid mosaic model and note on its function.	15	CO1	K2
(OR)			
b. Explain the structure of prokaryotic cell with reference to bacteria. Discuss the types of plasmids and their roles in bacterial adaptation.	15	CO1	K2
3.a. Describe the Hershey-Chase experiments using radio-labelled T2 bacteriophage in detail. Include the experimental design, observations, and the implications of the results.	15	CO2	K3
(OR)			
b. Elaborate on the concepts of supercoiled and relaxed DNA.	15	CO2	K3
4.a. Provide a detailed explanation of the principles underlying Southern blotting. How is this technique used to detect specific DNA sequences?	15	CO3	K4
(OR)			
b. Discuss the principles and applications of Northern and Western blotting techniques in molecular biology.	15	CO3	K3
5.a. Evaluate the economic and environmental implications of using microbial enrichment processes in the extraction of metals from ores.	15	CO4	K3
(OR)			
b. Explain the concept of bioremediation and how genetically engineered bacteria play a role in this environmental clean-up process.	15	CO4	K4

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