QP Code: R253G050 | Reg. No | | | | | | | | | | | AY 24

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

M.Sc. (Third Semester – Regular) Examinations, December – 2025

24MBIPC23001 – Bioprocess Engineering technology

(Biotechnology)

Time: 3 hrs | Maximum: 60 Marks

Answer ALL questions

(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. Differentiate between upstream and downstream processing?	CO3	K3
b. What is the necessity of water recycling in fermentation process?	CO4	K1
c. Differentiate between scale up and scale down process?	CO3	K2
d. What do you mean by diauxic growth? Give with examples?	CO1	K1
e. State about elemental balance in microbial growth?	CO2	K3

PART – B **(10 x 5 = 50 Marks)**

Answer ***ALL*** the questions	Marks	CO #	Blooms Level
2. a. Discuss in detail about isolation, screening and maintenance of industrially important microbes?	10	CO1	K3
(OR)			
b. Write notes on continuous fermentation?	5	CO2	K2
c. Write notes on electrophoresis and its importance?	5	CO4	K2
3.a. Discuss in detail about the final purification process in downstream processing and product recovery?	10	CO4	K3
(OR)			
b. Explain about effluent treatment and its disposal?	5	CO5	K3
c. Write notes on ultra and micro filtration technique?	5	CO4	K2
4.a. Illustrate about the role of bacteriocins from lactic acid bacteria, its production and applications in food preservation?	10	CO4	K3
(OR)			
b. Explain how different parameters are measuring and controlling in bioprocess technology?	5	CO3	K3
c. Write notes on liquid-liquid extraction process?	5	CO4	K2
5.a. Discuss about mechanism of strain improvement for increased yield of products?	10	CO1	K3
(OR)			
b. Briefly explain about reverse osmosis process?	5	CO4	K3
c. Write notes on centrifugation techniques and its importance?	5	CO4	K2
6.a. Discuss in detail about the process of cell immobilization techniques and its application.	10	CO3	K3
(OR)			
b. Write notes on enzymatic bioconversion process in food processing with examples?	5	CO6	K2
c. Explain briefly about biofuels and biorefinery?	5	CO7	K3

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