

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



B. Tech (Sixth Semester - Regular) Examinations, April 2026

23BBTPC36003- Environmental Biotechnology

(Biotechnology)

Time: 3 hrs

Maximum: 60 Marks

(The figures in the right hand margin indicate marks)

PART – A

(2 x 5 = 10 Marks)

Q.1. Answer **ALL** questions

- a. Write the characteristics of effluents.
- b. Define bio-augmentation.
- c. Mention about BOD and its significance.
- d. What do you mean by slope leaching?
- e. Name two microbial metabolites used in MEOR.

CO #	Blooms Level
CO1	K2
CO2	K1
CO3	K2
CO4	K1
CO5	K2

PART – B

(10 x 5 = 50 Marks)

Answer **ALL** the questions

2. a. Describe sources, types and effects of air pollution.
- b. Illustrate the principles and applications of bioprospecting in environmental biotechnology.

Marks	CO #	Blooms Level
5	CO1	K2
5	CO1	K2

OR

- c. Explain biosensor technology and its role in environmental monitoring.
- d. Describe the types, sources and effects of water pollutants on environment and human health.
- 3.a. Highlight the role of methanogenic, acetogenic and fermentative bacteria in waste water treatment.
- b. Explain the use of genetically engineered microorganisms in wastewater treatment with its advantages.

5	CO1	K2
5	CO1	K2
5	CO2	K3
5	CO2	K3

OR

- c. How the technical processes and environmental conditions required for efficient anaerobic digestion? Explain.
- d. Discuss about the biochemistry behind waste water treatment.
- 4.a. Mention the detail applications of biocatalysts in environmental biotechnology.
- b. Discuss phytoremediation and its role in removal of organic and metallic pollutants.

5	CO2	K3
5	CO2	K2
5	CO3	K3
5	CO3	K3

OR

- c. Explain about the biodegradation of xenobiotic compounds.
- d. Compare the details about isolated enzymes and whole cell systems.
- 5.a. Write about the desulfurization of coal process.
- b. Discuss about bioplastic technology.

5	CO3	K3
5	CO3	K4
5	CO4	K2
5	CO4	K3

OR

- c. Explain direct and indirect bio-oxidation mechanisms involved in metal recovery.
- d. Discuss ethical issues involved in environmental biotechnology.
- 6.a. Describe briefly about the production of bioethanol from biomass with its application.
- b. Explain, how the Organic farming used for the development and sustainability of environment.

5	CO4	K3
5	CO5	K3
5	CO5	K2
5	CO6	K2

OR

- c. Explain types, production and applications of bio-fertilizers.
- d. Discuss about the mechanism of bio-pesticide construction.

5	CO5	K2
5	CO6	K2

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