

B.Sc. Semester - 3 (NEP-2020) Examination**OCT/NOV-2024****MIC: Microbial Biotechnology (Theory) (Multidisciplinary Course)****Time: 2:00 Hours****Marks: 50****Instructions:**

1. All questions are compulsory.
 2. Figures to the right indicate marks.
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Que-1 Answer the following questions. (10)

- 1) What is microbial biotechnology? Write its applications in human therapeutics.
- 2) Short note - PGPR.

OR

- 1) How does microbial biotechnology contribute to environmental sustainability?
- 2) What are genetically engineered microbes? How yeast used in industry?

Que-2 Answer the following questions. (10)

- 1) Explain the advantages of biocatalytic processes over chemical methods.
- 2) How is high fructose syrup produced using microbial biocatalysis?

OR

- 1) Describe the production of cocoa butter substitutes using microbial transformation.
- 2) Microbial transformation of steroids.

Que- 3 Answer the following questions. (10)

- 1) Bioethanol production from lignocellulosic waste is a microbial process - justify.
- 2) MEOR.

OR

- 1) Describe the process of methane production by microbial culture.
- 2) How heavy metals can be removed from aqueous effluents?

Que- 4 Answer the following questions. (10)

- 1) Role of filtration technique in product purification.
- 2) Affinity chromatography – as a downstream process.

OR

- 1) What is whole cell immobilization? Explain in brief.
- 2) Write in short about host pathogen interactions.

Que- 5 Answer the following questions. (10)

- 1) Mycorrhizae – state its importance.
- 2) Explain in brief about advantages of microbial transformation.

OR

- 1) How hydrogen gas can be produced by microorganisms?
- 2) Write in detail about advantages of immobilization techniques.
