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6. (a) What are the GMOs and how they can be used
for bioremediation of oil spills. (6)

(b) What are the steps involved in microbial
transformation of steroids. (6)

(300)

[This question paper contains 4 printed pages.]

Your Roll No.....

Sr. No. of Question Paper : 8078 L

Unique Paper Code : 2533012011

Name of the Paper : Microbial Biotechnology

Name of the Course : **B.Sc. (Hons.) Microbiology**

Semester : VIII, NEP (Part-IV)

Duration : 2 Hours

Maximum Marks : 60

Instructions for Candidates

1. Write your Roll No. on the top immediately on receipt of this question paper.
2. All question carries equal marks.
3. Attempt any five questions.

- 1 (a) Describe the microbial production process of recombinant insulin. (4)

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- (b) Describe the global biotechnology industry landscape, and their impact on healthcare. (4)
- (c) Enumerate four advantages of using microorganisms for the mass production of valuable biotech products, illustrate with the help of an example. (4)
2. (a) Explain the role of Bharat Biotech in India's biotechnology sector, mentioning their innovations in vaccines or antibiotics. (4)
- (b) Describe the production of microbially derived thrombolytic agent streptokinase. (4)
- (c) Explain the principle and uses of enzyme-based biosensors. (4)
3. Differentiate between the following : (3×4=12)
- (i) laboratory-scale bioreactor and pilot-scale bioreactors

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- (ii) Hepatitis B and Covid-19 vaccine
- (iii) Xanthan gum and PHB
4. Define the following (**any three**) : (3×4=12)
- (i) tPA
- (ii) High fructose corn syrup
- (iii) Agar-agar
- (iv) *Trichoderma harzianum*
5. (a) Explain the role of bacteria in removing heavy metals from industrial effluents. (4)
- (b) Describe the development of enzyme-based biosensors. (4)
- (c) What is the production method of Single Cell Protein. (4)

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