

[This question paper contains 2 printed pages.]

Your Roll No.....

Sr. No. of Question Paper : 288

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Unique Paper Code : 2533012011 (DSE)

Name of the Paper : Microbial Biotechnology

Name of the Course : **Microbiology**

Semester/Part : VI/ III

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. Attempt any **five** questions. **All** questions carry equal marks.

1. Explain the following terms (**any six**):

2 x 6 = 12

- a) Bt Brinjal
- b) Synthetic meat
- c) Human growth hormone
- d) Golden rice
- e) Xanthan gum
- f) Microbial pigments
- g) Biofuel

2. Differentiate between the following pairs (**any three**):

4 x 3 = 12

- a) Liquid and carrier based biofertilizers
- b) Prokaryotic and Eukaryotic expression systems
- c) Laboratory and Industrial scale bioreactors
- d) Edible vaccines and Conventional vaccines

3. Write short notes on the following (**any three**):

4 x 3 = 12

- a) Microbial production of insulin
- b) Bioplastics
- c) Application of RNAi in crop improvement
- d) Covid-19 vaccines

P.T.O.

4. a) Explain the role of microorganisms in the removal of heavy metals from aqueous effluents. 4
- b) What are the advantages of using microbial systems for mass production of therapeutic products? 4
- c) Elaborate the commercial production of biocontrol agents. 4
5. a) Discuss the steps involved in production of high fructose corn syrup. 4
- b) What are biosensors? How is the enzyme Glucose oxidase used in development of biosensors? 4
- c) Define SCP. Discuss the importance and advantages of SCP over conventional protein sources. 4
6. a) Write the names and applications of important products produced by the following biotech industries (*any two*): 2 x 2 = 4
- i. Bharat biotech
 - ii. Serum Institute of India
 - iii. Biocon
- b) Discuss microbial transformation of steroids citing a suitable example. 4
- c) Describe the role of microorganisms in cleaning oil spills. 4