

[This question paper contains 2 printed pages.]

Your Roll No.....

Sr. No. of Question Paper : 6557

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Unique Paper Code : 2534001203

Name of the Paper : Applications of Microbes in Biotechnology

Name of the Course : **Microbiology**

Semester : II

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

Q1 Define the following (any **six**):

(2 x 6=12)

- (a) GEMs
- (b) Antibiotics
- (c) Recombinant vaccine
- (d) Biofuel
- (e) Bioremediation
- (f) Xenobiotics
- (g) Bioleaching

Q2 Write the differences between:

(4 x 3=12)

- (a) Proteomics and Genomics
- (b) Primary metabolites and Secondary metabolites
- (c) Biofertilizer and Biopesticide

Q3 (a) What is Golden Rice? How is it developed using biotechnology?

(6)

(b) Give an example of a producer microorganism and write an application of the following (any **three**):

(2 x 3= 6)

Xanthan Gum, PHB, Corn starch, Vitamin B12

P.T.O.

Q4 (a) Mention the industrial applications of the following microbial products (any *two*):

(3 x 2=6)

- i. High fructose corn syrup
- ii. Microbial Biosensors
- iii. Insulin

(b) What do you understand by bioremediation? Discuss the process of removal of uranium from waste using microbes. (6)

Q5 (a) Discuss the production strategy of Covishield. (4)

(b) Write the importance of laboratory-selected mutants. Give an example. (3)

(c) What is Bt Cotton? Name the microorganism used to develop it. (3)

(d) Name any two fungi commonly used in biotechnological applications. (2)

Q6 Write short notes on the following (any *three*):

(4 x 3=12)

- (a) Gene therapy for SCID
- (b) Bioplastics
- (c) Production of streptomycin
- (d) Biogas production using microbes