

Roll No. ....

Total Pages : 3

**GSQ/M-21**

**1771**

**MICROBIAL BIOTECHNOLOGY**

Paper–XIII

Time Allowed : 3 Hours]

[Maximum Marks : 40

**Note** : Attempt **five** questions in all, selecting at least **two** questions from each Unit. Question No. 1 is compulsory. All questions carry equal marks.

**Compulsory Question**

1. Write in short on the following : 2,2,2,1,1
- (a) Give advantages of Continuous fermentation over Batch fermentation.
  - (b) Give example of any four industrially important bacteria with their uses.
  - (c) Define solid state fermentation and give its significance for Fermentation Industry.
  - (d) Define Syntrophic bacteria.
  - (e) Name two fungi known to be employed as Bioinsecticides.

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## UNIT-I

2. Write short notes on the following : 3,3,2
- (a) Chemostat.
  - (b) Measurement of dissolved oxygen in a fermentor.
  - (c) Synchronous growth.
3. What are the different methods for preservation of industrially important microorganism and which method you think is best for Culture collection service and why ? 8
4. Write short notes on the following : 3,3,2
- (a) Airlift reactor.
  - (b) Bubble column reactor.
  - (c) Methods for cells disintegration.

## UNIT-II

5. Describe the Microbial fermentation for production of Beer. 8

6. Write short notes on the following : 4,4
- (a) Citric acid fermentation.
  - (b) Microbial production of Xanthan gum.
7. Write short notes on any **two** of the following :
- (a) PHA.
  - (b) Biomining.
  - (c) Glutamic acid fermentation. 4,4