

(Theory Paper)

Paper : BOT 403 (Opt.-2)

(Microbiology)

Full Marks – 80

Pass Marks – 32

Time – Three hours

The figures in the margin indicate full marks
for the questions.

1. Choose the correct answers : 1×6=6
- (a) The purification and recovery of the product after fermentation is called _____. (Upstream process / Downstream process).
 - (b) Nitrogenase are enzyme responsible for _____. (biological nitrogen/carbon fixation)
 - (c) For thorough mixing of medium and inoculum the part of fermentor used is _____. (Shaft / Impeller)
 - (d) The process of steam treatment of food products is called _____. (blanching / canning).

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- (e) BOD (Biological Oxygen Demand) is commonly used for estimating amount of _____. (organic matter/microorganisms in sewage water).
- (f) _____ are efficient producer of citric acids. (*Aspergillus sp./Pseudomonas sp.*)

2. Write short accounts on any *five* of the following :
2×5=10

- (a) Biofertilizer
- (b) Rhizosphere
- (c) Stationary fermentation
- (d) Two characteristics of secondary metabolites
- (e) PHB
- (f) Metagenomic.

3. Write short notes on any *six* of the following :
5×6=30

- (a) Large scale production of amylase
- (b) Microbial flora of fresh foods, meat and milk
- (c) Role of biopesticides in agriculture
- (d) Methods of food preservation
- (e) Phosphate solubilization

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- (f) Single cell protein
- (g) Biofertilizers and biological control.

4. Answer any *two* of the following questions :
 $10 \times 2 = 20$

- (a) Explain with diagram the working principles of Stirred Tank Bioreactor.
- (b) Discuss about any *one* of the following methods and its significance in microbiology
 - (i) Casein hydrolysis
 - (ii) Starch hydrolysis
 - (iii) Cellulose hydrolysis.
- (c) Discuss the different types of Bioremediation Process.

5. Answer any *one* of the following questions :
 $14 \times 1 = 14$

- (a) Explain primary metabolite production and the steps involved in the production process of any one or two amino acids. Comment on the commercial uses of amino acids. $10 + 4 = 14$
- (b) What are the various causes of food spoilage ? Describe microbial spoilage of vegetable, fruits, cereal grains and meat.
 $2 + 3 + 3 + 3 + 3 = 14$