

2012

M.Sc.

3rd Semester Examination

BIOTECHNOLOGY

PAPER—BIT-303

Full Marks : 40

Time : 2 Hours

The figures in the right-hand margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

Illustrate the answers wherever necessary.

(Microbial Biotechnology)

Group—A

1. Answer any five questions from the following : 2×5
- (a) What is the significance of monitoring dissolved oxygen concentration during fermentation.
- (b) State the function of microbial culture collection centre name one each collection centre of National international repute ?

(Turn Over)

- (c) State the differences between bio-fertilizer and organic manure.
- (d) Distinguish between dry and fortified urine with example.
- (e) What do you mean by molecular mimicry? Give example.
- (f) What do you mean by salting out of protein? Name one protease inhibitor.

1+1

- (g) Differentiate between air lift and stirred tank bioreactor.
- (h) Which chemical compound is added in an alcohol fermentation medium to divert the process towards excess glycerol production? Name one algal species used for commercial production of glycerol.

1+1

Group—B

Answer any two questions

5×2

2. Mention some advantages of biofertilizer over chemical fertilizer. How do you screen an efficient phosphate solubilizing bacterial strain from soil sample?

2+3

3. What rights are available to protect IPR.? State the differences between Process Patent and Product Patent. 5
4. Distinguish between pre-and pro-biotics. Briefly discuss various applications of probiotics. 5
5. Why removal of the producer micro-ganisms from the fermented broth is necessary during down stream processing of most of the industrial fermented product ? Describe any one technique used in industry for the above purpose. 2+3

Group—C

Answer any *two* questions

6. What do you mean by enzyme immobilization ? What are the advantages of immobilized enzymes over their soluble counterpart ? Briefly describe various methods of enzymes immobilization with suitable sketch. 2+3+5
7. What is a bio-sensor ? Describe various parts of a typical biosensor. Mention a few applications of biosensor in the medical field. 2+3+5

8. Describe the biochemical Pathway for bacterial lysine production. What modifications are made of bacterial strain and media for optimum lysine production. How lysine is purified from fermented broth ?

10

9. How bioremediation is good for environmental clean up ? Write notes on in situ and Ex-situ bioremediation.

10
