

Total No. of printed pages = 4

FPT-501/ITFMB&B/5th Sem/2016/N

**INTRODUCTION TO FOOD MICROBIOLOGY,
BIOCHEMISTRY AND BIOTECHNOLOGY**

Full Marks – 70

Pass Marks – 28

Time – Three hours

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

Answer any *five* questions.

1. (a) Define culture medium. What is the advantage of solid media over liquid broths ?
4
- (b) What are enzymes ? Explain in brief the preparation of enzymes with a flow diagram.
6
- (c) Give two important characteristics of prokaryotic cell.
2
- (d) What are the different micro-organisms used for biomass production ?
2

[Turn over

2. (a) What is generation time ? In which phase there is an increase in cell number and why ? 4
- (b) What is the difference between aerobic and anaerobic respiration ? 3
- (c) Draw and label the schematic diagram of stirred tank bioreactor. 5
- (d) What are co-factors ? Give two examples. 2
3. (a) Define the following terms : $2 \times 5 = 10$
- (i) Cell
 - (ii) Slant method
 - (iii) Colony texture
 - (iv) Biomass
 - (v) Death phase.
- (b) What is ATP ? Write a brief note on protein metabolism. 4
4. (a) Define enriched media. Why is agar a good solidifying agent ? 3
- (b) Draw the shape of spiral and bacillus bacteria. 3

- (c) Explain with suitable diagram the process of production of flavour compounds. 6
- (d) How is the temperature controlled in industrial fermenters ? 2
5. (a) Explain in brief the application of enzymes in food industry. 5
- (b) What is streak plate ? What is the purpose of pure culture isolation ? 3
- (c) What is the role of yeast in fermentation process ? 2
- (d) Explain with suitable diagram the conjugation mode of reproduction in bacteria. 4
6. (a) Differentiate between : $3 \times 3 = 9$
- (i) Synthetic and Non-synthetic medium
- (ii) Competitive and Non-competitive inhibition
- (iii) Anabolism and Catabolism.
- (b) Draw and label the ultra-structure of a bacterial cell. 3
- (c) Give some application of Lyophilization. 2

7. (a) Write short notes on any *three* : $4 \times 3 = 12$

(i) Immobilized enzymes

(ii) SCP

(iii) Ethanol production

(iv) Glycolysis

(v) Fermented food.

(b) Define differential media giving suitable examples. 2