

Total number of printed pages—3

53 (FPT 404) FDMB

2019

**FOOD MICROBIOLOGY**

Paper : FPT 404

Full Marks : 100

Time : Three hours

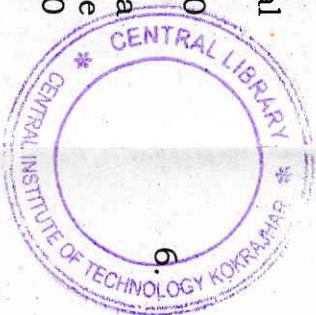
**The figures in the margin indicate  
full marks for the questions.**

Answer **any five** out of the **six** questions.

1. (a) Elaborate on the characteristics, pathogenesis, symptoms and remedies of the following foodborne pathogens. 5+5  
(i) *Salmonella* (ii) Hepatitis B.
- (b) Describe different types of bacteria based on their ability to survive and/or growth in presence and/or in absence of oxygen. 6
- (c) What is a foodborne outbreak? What are its symptoms? Explain with example. 1+3

Contd.

2. (a) Elaborate on **any two** of the following biochemical pathways : 8+8
- (i) Embden Meyerhof Parnas (EMP)
- (ii) Homolactic fermentation
- (iii) Heterolactic fermentation.
- (b) What are probiotic bacteria? Give an example. What are the major fermentation microorganisms in soy sauce? 2+2
3. (a) Describe the structure of bacterial flagella with a schematic diagram. 10
- (b) Describe different growth phases of a bacteria with the help of a simple growth curve. 10
4. (a) Describe the fermentation profile of the following fermented foods : 5+5
- (i) Sauerkraut (ii) Yoghurt
- (b) Draw a simple schematic diagram to demonstrate magnification achieved by a compound light microscope. 8
- (c) What is botulism? What are the toxins involved in foodborne botulism? 2



5. (a) Describe different classifications of fungi with examples. 12
- (b) Describe **any two** of the following with examples for each : 3×2
- (i) Intoxication
- (ii) Infection
- (iii) Toxicoinfection.
- (c) Name a lactic acid bacteria that can produce diacetyl in fermented dairy products. Give an example of such fermented dairy product. 1+1
6. (a) Elaborate on a generalized process flow diagram of sausage processing. What are the significance of lactic acid bacteria (LAB) and surface molds in sausage fermentation? 8+4
- (b) What is 'cheddaring'? What is the propionic acid fermenter in Swiss Cheese? 2+1
- (c) On the basis of optimum growth temperature (OGT), what are the different types of bacteria? Discuss with examples for each of the types. 5