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*** *questions out of* ***six.***

1. *(a)* Define the following terminologies with *two* examples for each : 6

   (i) Intoxication

   (ii) Infection

   (iii) Toxicoinfection.

   (b) Briefly describe the homolactic fermentation, and give example of a fermented food, and a starter bacteria responsible for such fermentation. 8+2

(c) What is Botulism ? By what other name did this disease used to be known ? 2+1

(d) Who developed the process of food sterilization in metal cans ? 1

2. (a) How do the following factors affect microbial growth ? 10

(i) Water activity

(ii) pH

(iii) Radiation.

(b) Elaborate structure of bacterial DNA with a schematic diagram. 10

3. (a) Briefly elaborate on Sauerkraut fermentation. What is Cheddaring ? 8+2

(b) List *four* major flavor compounds present in many fermented dairy products. Explain how diacetyl is produced during fermentation. 2+4

(c) Define Foodborne Outbreaks. Explain the term "symptom" with an example. 2+2

4. Write elaborate description on ***any two*** of the following foodborne diseases : 2×10

(i) Aflatoxicosis

(ii) Staphylococcal intoxication

(iii) Salmonellosis.

5. (a) Draw a generic flow diagram for Sausage processing. Explain the fermentation profile in sausage. 7+3

(b) Define D-value. Derive the mathematical expression of D-value. 2+8

6. (a) Explain what are enrichment medium and differential medium with examples. 6

(b) What is thermal processing time (*F* value) ? A spoilage bacteria has a *D* value of 1·35 at 121°*C*. In a canned food, 10 cells of the bacteria is the initial population. A spoilage probability of 1/1,00,000 is the target of the thermal processing. What is the thermal processing time (*F* value) for this sterilization process ? 2+5

(c) Elaborate on ***any two*** of the following : 2×3·5

(i) Malolactic fermentation in wine

(ii) Acetic acid fermentation in vinegar.