M.Sc. BIOTECHNOLOGY
FOURTH SEMESTER
FOOD & INDUSTRIAL BIOTECHNOLOGY
MBT-402

(Use separate answer scripts for Objective & Descriptive)

Duration : 3 hrs. Full Marks : 70

[PART-A : Objective]

Time : 20 min. Marks : 20

Choose the correct answer from the following: *1x20=20*

1. Vegetables can be dried by?
   a. Sun drying
   b. Explosive puffing
   c. Dehydration
   d. Pressing

2. Osmophilic yeasts that survive the heat process cause the spoilage of?
   a. Liquid sugars
   b. Honey
   c. Candies
   d. Canned molasses

3. The drawbacks of using X-rays in food preservation is:
   a. Their low efficiency
   b. High cost of production
   c. They are toxic
   d. Both a and b

4. Mechanical protection to fruits can be enhanced by the use of:
   a. Waxed wraps
   b. Paraffin oils
   c. Mineral oils
   d. All of them

5. Nitrates play a role in the colour of:
   a. Fruits
   b. Vegetables
   c. Meat
   d. Sweet meat

6. Undesirable flavor in fat or oil is:
   a. Souring
   b. Cloudiness
   c. Rancidity
   d. Contamination

7. Contamination of clostridium sp in canned food is detected by:
   a. D-value
   b. 12-D concept
   c. F- value
   d. Z-value

8. Curd is a .....fermented product.
   a. Propionic acid
   b. Lactic acid
   c. Alcoholic
   d. None

9. A role of benzoic acid in food preservation is to:
   a. Inhibit the growth of Microorganism
   b. Supports the growth of microorganism
   c. Kills the microorganisms
   d. None

10. GMP stands for:
    a. Good Manufacturing Practice
    b. Goods Multiplying Process
    c. Good Machinery Process
    d. Good Man Practice

11. Full form of SCP:
    a. Single chain peptide
    b. Single cell protein
    c. Standard count point
    d. None

12. Water portability is detected by .....test.
    a. SPC
    b. MBRT
    c. MPN
    d. FBT

13. 12 D concept is generally done to detect:
    a. Clostridium botulinum
    b. E. coli
    c. Salmonela
    d. All

14. The undesirable change in a food that makes it unsafe for human consumption is referred as:
    a. Food decay
    b. Food spoilage
    c. Food loss
    d. All of the above

15. Food preservation involves:
    a. Increasing shelf life of food.
    b. Ensuring safety for human consumption.
    c. Both a and b.
    d. None of these.

16. Pasteurization is a:
    a. Low temperature treatment
    b. Steaming treatment
    c. High temperature treatment
    d. Low and high temperature treatment

17. Common food poisoning microbes are:
    a. *Clostridium* and *Salmonella*
    b. *Clostridium* and *E. coli*
    c. *E. coli* and *Salmonella*
    d. *Clostridium* and *Streptococcus*

18. Which of the following statements are true regarding botulinal toxin?
    a. Is a neurotoxin.
    b. Water soluble exotoxin.
    c. Is produced by Clostridium botulinum a Gram positive anaerobic bacteria.
    d. All of these.

19. Aflatoxin is produced by:
    a. Aspergillus sp.
    b. Salmonella sp.
    c. Fusarium sp.
    d. Streptococcal sp.

20. The major carrier of Salmonellosis:
    a. Meat and Eggs
    b. Meat and Fish
    c. Eggs and Fish
    d. Eggs and fruits

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(PART-B : Descriptive)

Time : 2 hrs. 40 min. **Marks : 50**

[Answer question no.1 & any four (4) from the rest]

1. Describe two extrinsic and intrinsic factors responsible for the growth of microorganisms. 5+5=10
2. What are the physical methods employed in the preservation of food? 10
3. Name three dairy fermented products and give the flowchart of their preparation. Mention the use of fermenting organisms in the particular step of the product. 6+4=10
4. What are pre-probiotics organisms? Describe their importance in context to their health importance. 2+8=10
5. Write a short note on commercialization of fermented foods and its benefits. 5+5=10
6. Define immobilization of enzymes. Describe the role of enzymes in food industry. 2+8=10
7. Define bioreactors. Explain the different parts of bioreactors. 2+8=10
8. Explain the D-value and 12D concept in food preservation. 5+5=10

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