



LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

M.Sc. DEGREE EXAMINATION – FOOD CHEMISTRY AND FOOD PROCESSING

FIRST SEMESTER – NOVEMBER 2017

17PFP1MC03 - FOOD MICROBIOLOGY

Date: 08-11-2017
Time: 01:00-04:00

Dept. No.

Max. : 100 Marks

Part A

Answer ALL the questions.

10 x 2 = 20 marks

1. List the intrinsic and extrinsic factors that affect growth and survival of microorganisms.
2. Differentiate between thermophilic and mesophilic organisms?
3. What is soft rot in fruits and vegetables?
4. List the aerobic microbial spoilage in meat and the causative microorganisms.
5. Define food borne illness and food borne outbreaks.
6. What is the infectious dose of *Salmonella* required to cause symptoms of food borne illness?
7. Define primary and secondary metabolites of fermentation.
8. Why is vinegar fermentation referred to as mixed fermentation?
9. Define microbiological reference criterion of foods.
10. What are VBNC organisms?

Part B

Answer any EIGHT questions.

8 x 5 = 40 marks

11. Discuss microbial stress adaptation and stress response in food processing.
12. Write short notes on food biowars.
13. Describe a typical microbial growth curve.
14. Comment on antagonism as an important bacterial interaction in food spoilage.
15. i. Diagrammatically represent the general pattern of food spoilage and explain. (3 marks)
ii. What are perishable and semi perishable foods? (2 marks)
16. Discuss water activity as an important factor affecting microbial growth and food spoilage.
17. Briefly explain staphylococcal food poisoning.
18. Give the protocol for investigating a food borne disease. (3 marks)
Explain the chain of infection in a food borne outbreak (2 marks)
19. Elaborate on mushroom cultivation.
20. Discuss any ten challenges that a food microbiologist would face while formulating a probiotic food.
21. Write short notes on sandwich ELISA method.
- 22.

23. Discuss the two kinetic based models developed to predict growth of pathogenic and spoilage microorganisms in foods

Part C

Answer any **FOUR** questions.

4 x 10 = 40 marks

24. A foodborne outbreak from the consumption of sprouted vegetable salad involving 20 students was reported to the school authorities. Discuss any five major sources of microbial contamination that could have occurred and indicate the measures that should be implemented to reduce their incidence in foods.

25. Comment on the following microbial spoilage in milk:

i. Gas production and proteolysis ii. Colour changes iii. Ropiness

26. Discuss i) fermentation biochemistry in food. (5 marks)

ii) the three different ways in which fermentation process occurs in foods based on the sources of the desirable microorganisms. (5 marks)

27. Describe lactic acid fermentation in sauerkraut production.

28. Explain the types, general characteristics and control of food borne diseases.

29. Elaborate on the importance of sampling in microbial testing of foods. (6 marks)

Differentiate between conventional and rapid testing microbial methods. (4 marks)