LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

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

FIRST SEMESTER – **NOVEMBER 2019**

PFP 1503 – FOOD MICROBIOLOGY

Date: 05-11-2019   Dept. No.   Max. : 100 Marks
Time: 01:00-04:00

Part A

Answer ALL the questions.   **(10 x 3 = 30 marks)**

1. Diagrammatically represent the similarities and dissimilarities between a prokaryotic and eukaryotic cell.

2. Classify the types of waste water treatment.

3. What is putrefaction, ropiness and aerobic hydrolysis in foods?

4. Explain the steps in quorum sensing.

5. List the six parasitic diseases occurring in human beings transmitted through foods.

6. Briefly explain Listeriosis.

7. What are the forms in which commercial manufacturers provide starter cultures for food fermentation?

8. Write the characteristics of back slopping fermentation.

9. Give the importance of predictive modeling of microbial growth in the food sector.

10. What is denaturation, annealing and extension in PCR technique?

Part B

Answer ALL the questions.   **(5 x 8= 40 marks)**

11. a. Discuss the yeast and mold genera of importance in the food industry.
                    (or)
    b. Write a short note on the use of microorganisms as biological weapons.

12. a. Why is milk and fish considered an ideal medium for microbial spoilage?
                    (or)
    b. Outline the microbial spoilage of fruits, vegetables and bread.

13. a. Elaborate on E.coli infection, its prevention and control.
                    (or)
    b. Write a short note on marine sea food poisoning.

14. a. Formulate a synbiotic food and discuss its characteristics and health benefits to improve human gut wellbeing.
                    (or)
    b. Discuss the role of starter cultures.

15. a. Comment on traditional methods used to predict growth of pathogenic and spoilage microorganisms in foods.
                    (or)
    b. Write the advantages of rapid detection methods for microbial testing of foods and the use of ATP bioluminescence in food testing.

Part C

Answer any TWO questions.   **(2 x 15 = 30 marks)**

16. i. Explain nutrients, inhibitory substances and water activity as intrinsic factors in food that have an effect on the growth of microorganisms.
    ii. Differentiate between a) gas producing, slime producing and spore forming bacteria.
                                b) osmophilic and halotolerant bacteria.   (10 + 5)

17. Elaborate on i. aerobic and anaerobic spoilage in meat due to microbial action.
                  ii. significance of psychrophilic organisms in the meat industry.   (10 + 5)

18. Comment on aflatoxin and ochratoxin as important mycotoxins in foods.
    Discuss ELISA technique to analyse pathogens and toxins.   (5 + 10)

19. i. Classify starter cultures.
    ii. Describe EMP pathway, Pentose and Hexose phosphoketolase pathway in fermentation biochemistry.
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