



LOYOLA COLLEGE (AUTONOMOUS) CHENNAI – 600 034

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



FIRST SEMESTER – NOVEMBER 2024

PFP1MC04 – FOOD MICROBIOLOGY, HYGIENE AND SANITATION

Date: 15-11-2024

Dept. No.

Max. : 100 Marks

Time: 01:00 pm-04:00 pm

SECTION A – K1 (CO1)

Answer ALL the questions

(5 x 1 = 5)

1 MCQ

- a) The fermentation process where a part of the previous batch of a fermented product is used to inoculate the new batch is referred to as
- A. Natural fermentation
B. Mixed fermentation
C. Back slopping fermentation
D. Controlled fermentation
- b) The causative organism responsible for red discoloration in food spoilage is
- A. *Sarcina lutea*
B. *Serratia marcescens*
C. *Bacillus subtilis*
D. *Pseudomonas fluorescens*
- c) Choose the rapid detection method that is a simple modification of a procedure that reduces the assay time.
- A. Spiral plate technique
B. Immuno assay
C. Polymerase chain reaction
D. Bioluminescence sensors
- d) is formulated as a guide for regulators to assess when foods can be considered unacceptable or unsafe based on the absence or presence of microorganisms/toxins.
- A. National rules and specifications
B. Food safety standards
C. Medical reference criteria
D. Microbiological reference criteria
- e) The attraction of using bioweapons in war is due to which of the following reason?
- A. Easy transportation from one place to another
B. Non detection by routine security systems
C. Does not cause illness for several hours to several days
D. All of the above

SECTION A – K2 (CO1)

Answer ALL the questions

(5 x 1 = 5)

2 Answer the following

- a) Define probiotics.
- b) What is Quorum sensing?
- c) Write the reasons for uncertainty in sampling and microbial analysis of foods.

d)	List any four common food allergens that must be declared in food labels.
e)	Define food biowar.
SECTION B – K3 (CO2)	
	Answer any THREE of the following (3 x 10 = 30)
3	How do you interpret a bacterial growth curve and its relevance in food microbiology?
4	Write short notes on i) Ropiness ii) Rots iii) Whiskers iv) Microbial rancidity in foods.
5	Give the protocol for the sampling plan and sampling procedure adopted in microbial testing of foods.
6	Describe the future challenges that a food microbiologist can encounter in the control of microbes in the food chain.
7	Explain the significance of microbial attachments and biofilm formation on food quality and sanitation programs.
SECTION C – K4 (CO3)	
	Answer any TWO of the following (2 x 12.5 = 25)
8	Discuss the microbial interactions that occur in a lactic acid, controlled fermentation process.
9	a. What makes fish an ideal medium for microbial spoilage? (7.5 marks) b. Differentiate between conventional and rapid testing microbial methods. (5 marks)
10	Outline the chemical contamination that can occur in foods and can be hazardous on consumption.
11	Describe the cleaning and sanitation programme to be practised in the food facility and for the equipment to enable safe food production.
SECTION D – K5 (CO4)	
	Answer any ONE of the following (1 x 15 = 15)
12	a) Explain the types and general characteristics of food borne diseases. (10 marks)
2	b) Comment on two major environmental factors as sources of microorganisms in the food chain. (5).
13	Detail the purpose, principle, procedure, advantages and limitations of the Enzyme-Linked Immunosorbent Assay.
SECTION E – K6 (CO5)	
	Answer any ONE of the following (1 x 20 = 20)
14	i) The pH and oxidation reduction potential in food has a profound effect on the growth and viability of microbial cells. Justify this statement. How do we restrict the growth of microorganisms by modifying the water activity and pH of foods? (15 marks)
	ii) Place in order the following foods based on their nature of perishability from highly perishable to non-perishable: (5 marks) Chilled milk, Packed salt, bottled jam, raw fish, UHT milk, shelled eggs at room temperature, apples, tomatoes, canned meat and refrigerated yoghurt.
15	a) The concept of a Food Safety Management System is based on implementation of general requirements on hygienic and sanitary practices to be observed in food businesses. Compile these sanitation requirements and protocols that need to be followed by food handlers for safe food production. (15 marks)

b) Comment on the microorganisms that are likely to enter food through animal sources and the control measures that need to be followed to prevent this contamination. (5 marks).
