Name:

Enrolment No:

UPES

End Semester Examination, December 2024

Course: Food Contamination and Food Borne Infections **Semester : III**

Program: B.Sc. Food, Nutrition and Dietetics **Duration : 3 Hours**

Course Code: HSMB2043P **Max. Marks: 100**

Instructions: Read all questions carefully.

S. No.	Section A Short answer questions/ MCQ/T&F (20Qx1.5M= 30 Marks)	Marks	COs
Q 1	Choose the microorganism commonly associated with foodborne bacterial infections: a) *Salmonella* b) *Saccharomyces* c) *Aspergillus* d) *Penicillium*	**1.5**	**CO1**
Q 2	Identify the option that is NOT an extrinsic factor influencing microbial growth: a) Temperature b) pH c) Humidity d) Gas composition	**1.5**	**CO1**
Q 3	Water activity in food is a measure of: a) pH b) Moisture content c) Available water for microbial growth d) Salt concentration	**1.5**	**CO1**
Q 4	Choose the option which is a physical method for detecting microbes: a) Spectrophotometry b) Staining c) DNA sequencing d) None of the above	**1.5**	**CO2**

Q 5	Immunological methods in food microbiology are based on: a) DNA hybridization b) Antibody-antigen reactions c) RNA transcription d) Protein hydrolysis	**1.5**	**CO2**
Q 6	In food quality control, FDA stands for: a) Food and Drug Association b) Food and Dairy Administration c) Food and Drug Administration d) Food Development Agency	**1.5**	**CO1**
Q 7	Mycotoxins are produced by: a) Bacteria b) Yeasts c) Molds d) Viruses	**1.5**	**CO1**
Q 8	Listeria infections in food are commonly associated with: a) Poultry b) Freshwater fish c) Dairy products d) Nuts	**1.5**	**CO1**
Q 9	Choose the agency who sets microbiological standards for food: a) WHO b) HACCP c) ISI d) USDA	**1.5**	**CO1**
Q 10	Foodborne illness related to improperly canned foods caused by: a) *Salmonella* b) Shigellosis c) Botulism d) *E. coli*	**1.5**	**CO1**
Q 11	The hurdle concept involves combining multiple preservation techniques to control microbial growth: True/False	**1.5**	**CO2**
Q 12	Lactic acid bacteria are used in food preservation because they produce toxins: True/False	**1.5**	**CO1**
Q 13	Sampling methods are only necessary for liquid foods: True/False	**1.5**	**CO1**
Q 14	The primary purpose of microbial growth control in food is to improve taste: True/False	**1.5**	**CO1**

Q 15	Fresh meat has a higher risk of microbial contamination than processed meat: True/False	**1.5**	**CO2**
Q 16	Sampling methods do not affect the accuracy of microbial detection in food: True/False	**1.5**	**CO1**
Q 17	The main goal of HACCP is to improve the flavor of food: True/False	**1.5**	**CO1**
Q 18	Pulsed Electric Field (PEF) technology uses ionizing radiation to destroy microbes: True/False	**1.5**	**CO2**
Q 19	Aflatoxins are a group of mycotoxins commonly found in grains and nuts: True/False	**1.5**	**CO1**
Q 20	Listeria can grow at refrigeration temperatures, making it a challenging pathogen to control in foods: True/False	**1.5**	**CO1**
Section B (4Qx5M=20 Marks)			
Q 21	Compare intrinsic and extrinsic factors affecting microbial growth.	**5**	**CO2**
Q 22	Explain the genetically modified foods. Discuss their advantages and limitations.	**5**	**CO2**
Q 23	Explain why microbiological quality standards are important for food safety	**5**	**CO1**
Q 24	Describe how *Staphylococcus aureus* causes food poisoning.	**5**	**CO2**
Section C (2Qx15M=30 Marks)			
Q 25	A food safety inspector finds high levels of bacterial contamination in fresh meat samples from a local market. a) Discuss the common sources of microbial contamination in fresh meat and how they can affect meat quality. b) Describe the sampling techniques used to detect microbial contamination in meat. c) Discuss the preventive measures to be implemented at various stages of the meat supply chain to reduce contamination.	**5+5+5**	**CO3**
Q 26	A functional food company is developing a line of prebiotic supplements aimed at enhancing the growth of beneficial bacteria in the gut. a) Define prebiotics and explain how they differ from probiotics in terms of their role in gut health.	**5+5+5**	**CO3**

	b) Describe the types of compounds that act as prebiotics and the criteria they must meet to support beneficial gut bacteria. c) Discuss the benefits and potential limitations of incorporating prebiotics into the diet.		
Section D **(2Qx10M=20 Marks)**			
Q 27	Explain the importance of various detection methods (culture, microscopic, and immunological) for identifying microbes in food. Discuss the principle behind each method.	**10**	**CO3**
Q 28	Explain the principles behind high-pressure processing and pulsed electric fields in food preservation. How do these techniques inhibit microbial growth without compromising food quality?	**10**	**CO2**