


Name: Enrolment No:			
UNIVERSITY OF PETROLEUM AND ENERGY STUDIES End Semester Examination, December 2023			
Program Name: M.Sc. Nutrition and Dietetics Course Name: Food Microbiology Course Code: HSMB8001		Semester: III Time: 180min Max. Marks: 100	
SECTION A			
1. Each Question will carry 1.5 Marks			
2. Instruction: Complete the statement / Select the correct answer(s)			
		Marks	
Q1	Write the name of two-gram positive bacteria, one-gram negative bacteria.	1.5	CO1
Q2	Which phrase best describes how food microbes affect food production? a. Must be killed in food before it is consumed b. Can be beneficial, neutral, or harmful to humans c. Must be prevented from entering the food supply d. Always pose a threat to producers, processors and consumers	1.5	CO2
Q3	Which food product requires microbial fermentation in its preparation? a) Pasta b) Bread c) Soup d) Tomato catch-up	1.5	CO1
Q4	Which factor that affects microbial growth is associated with the pH of a food? a. Intrinsic factors b. Extrinsic factors c. Food processing d. Other microbes in the food	1.5	CO1
Q5	What is the meaning of the term “redox”? a. An intrinsic factor of a foods ability to accept or transfer electrons b. A time period in which bacteria in a population of bacteria will double c. The surface or material on which bacteria will grow and get oxygen d. none of the above	1.5	CO1
Q6	Which extrinsic factor can induce microbial growth in ““Dried meat products are vacuum packaged””? a. Temperature b. Time c. Atmosphere d. Relative humidity	1.5	CO2
Q7	Which phase of bacterial growth is the period of rapid increase? a. The lag phase b. The log phase c. The stationary phase d. The lug phase	1.5	CO1

Q8	Overripe bananas are the example of a. Chemical spoilage b. Self-enzymatic spoilage c. Microbial spoilage d. All of the above	1.5	C03
Q9	What is the best way to limit food spoilage from mould growth? a. Reduce oxygen b. Lower pH c. Cool temperatures d. Increase the humidity environment	1.5	C03
Q10	Which of the following produces the toxic substance mycotoxin? a. Fungal organisms b. Lactic acid bacteria c. Probiotic microbes d. Primary fermentation	1.5	C04
Q11	Which phrase best describes pathogenic microbes? a. They harm or cause disease in a host organism. b. They trigger an allergic reaction when ingested. c. They promote digestive health and remain in the gut. d. They provide nutrients essential to the fermentation process.	1.5	C03
Q12	Which definition applies to microbial foodborne infection? Select all that apply. a. Illness results from eating food which requires bacterial growth during its preparation. b. Illness results from eating food in which illness causing pathogens are present. The pathogens multiply in tissues in the body. c. Illness results from eating food that has been contaminated with chemicals (toxins) during preparation. d. Illness results from eating food with pre-formed toxins from bacteria, fungus, algae or other microbes. The toxins are present in the food before it is ingested.	1.5	C04
Q13	Which etiologic agent is most commonly associated with eggs? a. <i>Shigella</i> b. <i>Salmonella</i> c. <i>Bacillus cereus</i> d. <i>Clostridium perfringens</i>	1.5	C01
Q14	Why should food service workers understand how foodborne illnesses are identified and controlled? a. Food service workers are the most common source of pathogens in prepared food. b. Food service workers are usually the first ones to be informed of a foodborne illness. c. Food service workers are not responsible for management and control food safety. d. none of the above	1.5	C04

Q15	<p>What is the relationship between cleaning and sanitizing?</p> <p>a. Cleaning is important to remove debris before sanitizing occurs. b. Sanitizing uses harsher chemicals than cleaning. c. Sanitizing is done more frequently than cleaning. d. Cleaning is unnecessary in areas that are sanitized.</p>	1.5	C02
Q16	<p>What are the two most important ways for food handlers to prevent the spread of pathogenic microbes in this list?</p> <p>a. Ensure that hand washing is done properly and frequently to prevent contamination of food b. Ensure that clothing standards are adequate and adhere to code c. Ensure that correct sanitizers are used and results are monitored d. Ensure that food-grade gloves are worn by workers and changed as often as necessary to prevent contamination of food</p>	1.5	C02
Q17	<p>Which of the following is an intrinsic factor limiting microbial growth in food?</p> <p>a. Curing b. Acidity c. Freezing d. Sodium benzoate</p>	1.5	C01
Q18	<p>For which two of the following food preparation processes heating to a specific temperature for a specific time most critical??</p> <p>a. Canning b. Smoking c. Dehydration d. Freeze drying e Pasteurization</p>	1.5	C04
Q19	<p>Which statement explains why hazard analysis and critical control points are essential in the food preparation industry?</p> <p>a. Critical control points are needed due to the time it takes to prepare the food. b. Microbial contamination of foods is always a result of poor temperature control. c. Microbial contamination of foods can occur at many different steps during processing. d. Critical control points are specific to the type of equipment used by a processing facility.</p>	1.5	C05
Q20	<p>At what point does a HACCP strategy become important in a new food service establishment?</p> <p>a. As soon as staff are hired b. When the facility is being designed c. As soon as the equipment has been installed d. When the menus or products have been determined</p>	1.5	C05

SECTION B

1. Each question will carry 5 marks

2. Instruction: Write short / brief notes			
Q1	Match the following: a) Bacteria b) Fungi c) Algae d) Virus e) Prions	i. Infectious biomolecules ii. Photosynthetic iii. Chitin iv. Peptidoglycan v. Non-cellular	3+2=5 CO1
Q2	Draw and write the characteristics of several phases of a bacteria growth by a growth curve.		5 CO1
Q3	Define disinfectant, antiseptic, sterilant, sanitizer, and bactericide.		5 CO2
Q4	a) What is food spoilage? b) Write a short note on the extrinsic and intrinsic factors that impact food spoilage.		1+4=5 CO3
SECTION C			
1. Each Question carries 15 Marks.			
2. Instruction: Write long answer.			
Q1	Recently, a group of students admitted to hospital with mucoid diarrhea (bloody), abdominal pain, and stomach cramps. Their travel history showed that they travelled back from Thailand 24h ago and had raw and under cooked foods that includes, oyster, chicken, raw salad, etc. there. a) Do you think it might be a case of food-borne illness? Discuss why and what types of illness according to you. b) What types of causative agents may be involved in such cases? c) What precautionary measure the travelers should have taken? d) Write the microbes associated with meat, eggs, and vegetables that can cause food-bore illness.		6+2+4=3=15 CO4
Q2	A young girl has consumed home-made canned food. After 30 mins she developed some health condition with symptoms including difficulty swallowing or speaking, facial weakness and paralysis, blurry vision, and extreme weakness. a) What happened to her? Explain in detail. b) What precautionary measures should have followed during the preparation and processing of the canned food. c) Write example of two bacteria and one moulds that produce toxins.		5+4+6=15 CO4
SECTION D			
1. Each Question carries 10 Marks.			
2. Instruction: Write long answer.			
Q1	a. Compare food intoxication and food infection. b. How will you control food infection? c. What are the sources of microbes in food?		4+3+3=10 CO4
Q2	a) Discuss pasteurization? b) Write advantages and disadvantages of dry heat and moist heat sterilization. c) Is pasteurized juice is sterile? Explain why?		4+3+3=10 CO2