Name: Enrolment No:	UPES UNIVERSITY OF TOMORROW

UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
End Semester (Odd) Examination, December 2024.

Course: Food Microbiology **Semester: 3**
Program: M.Sc. ND **Time : 03 hrs.**
Course Code: HSMB8001 **Max. Marks: 100**

Instructions:

SECTION A
(5Qx4M=20Marks)

S. No.		Marks	CO
	Statement of question		
Q 1	a) Define food spoilage. b) Why food spoilage occur?	**2+2=4**	**CO1**
Q 2	Explain how redox potential of food can impact the growth of specific microbes.	**4**	**CO4**
Q 3	Compare food intoxication and food infection.	**4**	**CO3**
Q 4	Write name of two bacteria, one mold and one yeast microbes found in fresh meat.	**4**	**CO1**
Q 5	Match following antimicrobial preservatives with respective foods a) Sorbic acid i) Jam b) benzoic acid ii) baked food c) propionic acid iii) cheese d) lactic acid iv) Wine	**4**	**CO2**

SECTION B
(4Qx10M= 40 Marks)

	Statement of question		
Q7	a) What is the importance of food processing? b) Explain the aerobic spoilage of meat by molds. c) What are the sources of microbes in the processed meat?	**5+3+2=10**	**CO1**
Q 8	a) Define microbial spoilage of food. b) Compare blanching and dehydration based food processing. c) What is putrefaction? Write example of two microbes which do putrefaction.	**2+4+4=10**	**CO2**
Q 9	a) How will you evaluate the bacterial rotting of eggs? b) What is pin-spot modling?	**5+5=10**	**CO2**
Q 10	a) What is Hurdle Technology? b) Discuss the general characteristics of antimicrobial peptides c) Identify the advantages of using AMPs in food preservation compared to conventional chemical preservatives.	**2+3+5=10**	**CO1**

SECTION-C
(2Qx20M=40 Marks)

	Statement of question		
Q 11	a) What is homofermentative and heterofermentative LAB? b) What are the limitation of biopreservation? c) Classify bacteriocin with one example. d) Can we use bacteriophage for food preservation? Explain.	**3+4+4+6+3 =20**	**CO3**
Q 12	a) Outline the steps involved in conducting a HACCP analysis? b) Discuss the benefits and challenges of implementing HACCP in food safety management? c) How many principles are there for HACCP? d) Explain how critical control points (CCPs) are determined and managed during food production e) Why auditing and record keeping is essential for an effective HACCP?	**4+4+4+4+4 =20**	