

Name:

Enrolment No:



UPES

End Semester Examination, December 2024

Course : Food contamination and food borne diseases Semester : III
Program : MSC-MICROBIOLOGY Duration : 3 Hours
Course Code: HSMB 8015P Max. Marks:100

Instructions: All questions are compulsory.
Please read the questions carefully. The paper contains four sections

S. No.	Section A	Marks	COs
	Short answer questions/ MCQ/T&F (20Qx1.5M= 30 Marks)		
Q 1	'Aflatoxins cause food borne infections.' Comment on the statement.	1.5	CO1
Q2	Common symptoms associated with food borne diseases are a. Vomiting b. Nausea c. Abdominal pain d. All of the above	1.5	CO2
Q3	Food borne viruses are a. Norovirus b. Hepatitis A c. Hepatitis B d. All of the above e. a and b	1.5	CO4
Q4	Temperature danger zone in degree Celsius is a. 21-60°C b. 5-21°C c. 4.4-60°C d. Above 60°C	1.5	CO4
Q5	Flow of food and wastewater shall be a. Diagonal b. Parallel c. Unidirectional d. Opposite	1.5	CO3
Q6	Presence of plastic in food is a type of a. Physical hazard b. Chemical hazard c. Pollution d. Biological hazard	1.5	CO2
Q7	A food manufacturing unit/restaurant should conform to using a. Mineral water b. Potable water c. Packaged bottle water d. Local Himalayan water	1.5	CO3
Q8	Beef loaf was cut using a knife and same knife was used to cut a baked cake. This practice with regards to food borne diseases can lead to	1.5	CO3

	<ul style="list-style-type: none"> a. Contamination b. Cross-contamination c. Spoilage d. Undesired taste 		
Q9	<p>An important source of heat resistance spore-forming bacteria is</p> <ul style="list-style-type: none"> a. air b. Soil c. Sewage d. Water 	1.5	CO3
Q10	<p>What is the full form of HACCP?</p> <ul style="list-style-type: none"> a) Health Analysis and Critical Control Points b) Health Analysis and Critical Criteria for Production c) Hazard Analysis and Critical Control Points d) Hazard Analysis and Critical Criteria for Production 	1.5	CO2
Q11	<p>_____ is the CCP for the processing of milk.</p> <ul style="list-style-type: none"> a) Removal of fat b) Milking c) Evaporation d) Pasteurization 	1.5	CO1
Q12	<p>Botulism toxins are _____</p> <ul style="list-style-type: none"> a) Neurotoxins b) Cytotoxins c) Myotoxins d) Endotoxins 	1.5	CO1
Q13	<p>Ergotism is caused due to _____</p> <ul style="list-style-type: none"> a) <i>Aspergillus niger</i> b) <i>Penicillium notatum</i> c) <i>Saccharomyces cerevisiae</i> d) <i>Claviceps purpurea</i> 	1.5	CO1
Q14	<p>The ____ value represents the temperature needed for the thermal destruction curve to traverse one log cycle</p> <ul style="list-style-type: none"> a) Z-value b) D-value c) T-value d) k-value 	1.5	CO1
Q15	<p>What will be the decimal reduction time if the number of organisms at t=0 is 1000 and at t=10 is 100?</p> <ul style="list-style-type: none"> a) 100 b) 5 c) 1 d) 10 	1.5	CO1
Q16	<p>Yeast and mould count determination requires _____</p> <ul style="list-style-type: none"> a) Nutrient agar b) Acidified potato agar c) Mc Conkey agar d) Violet Red bile agar 	1.5	CO1
Q17	<p>Food preservation at low temperature works mainly by</p> <ul style="list-style-type: none"> a) Killing the microbe b) reducing the generation time 	1.5	CO3

	c) increasing the lag phase d) none of the above		
Q18	----- is a pathogen that causes food intoxication.	1.5	CO4
Q19	Which of the following microbial control methods does not actually kill microbes or inhibit their growth but instead removes them physically from samples? a. filtration b. desiccation c. lyophilization d. nonionizing radiation	1.5	CO2
Q20	Pasteurization is the heat treatment designed to kill a. Vegetative forms of microorganism b. Spore forming forms of microorganism c. Only bacteria d. Both a and b	1.5	CO1
Section B (4Qx5M=20 Marks)			
Q21	In a restaurant food segregation becomes very relevant to prevent cross contamination. Explain briefly what is meant by this.	5	CO4
Q22	Define HACCP. Discuss various types of hazards in food.	5 (1+4)	CO2
Q23	Elucidate HACCP procedure for a fruit juice industry highlighting the major hazards and critical control points.	5 (3+1+1)	CO2
Q24	On a cruise chilled salad was served but it led to nausea, vomiting and low grade fever. One person also went on to develop more serious headache, neck stiffness, convulsions and fever. Spot what is the likely pathogen and what is its pathogenesis?	5	CO2
Section C (2Qx15M=30 Marks)			
Q25	“Surveillance systems and surveys provide vital information about the burden of foodborne illness in the United States, but they do not capture <i>every</i> illness. Because only a fraction of illnesses are diagnosed and reported, we need periodic assessments of the total burden of illness to set public health goals, allocate resources, and measure the economic impact of disease. Therefore, we estimate.” Based on this statement taken from CDC, US; answer the following: 1. Evaluate what are the leading causes of foodborne deaths, hospitalizations, and illnesses across the world? (Enlist all that you know) 2. Estimate which population age groups are serious target and why is it a public health concern? 3. Describe how do these agents and resultant food borne infections differ in India versus in US? 4. State reasons why do they differ in India and US. 5. Explain what MAP (modified atmosphere packaging) and its role is in preserving foods and preventing food borne diseases. 6. A. Define epidemiology. B. Define prevalence	15 (4+2+2 +2+2+3)	CO1
Q26	Kenya experienced acute aflatoxicosis in 2004. It had correlation with Hepatitis B. Based on the knowledge you carry; answer the following 1. Define aflatoxins. 2. Describe their types.	15 (1+3+2)	CO3

	3. Describes the main food types they are associated with. 4. Recall a method of Aflatoxin detection in blood and serum. 5. Describe evident risks/symptoms associated with aflatoxicosis. 6. Describe potential long term risk/s associated with aflatoxicosis.	+6+2+1)	
Section D (2Qx10M=20 Marks)			
Q27	Enlist and frame the roles of various factors affecting microbial growth in food.	10 (4+2+4)	CO1
Q28	Elaborate pathogenesis of enterotoxigenic <i>E. coli</i> , enterohemorrhagic <i>E. coli</i> and enteropathogenic <i>E. coli</i> with view of their target groups epidemiology and seriousness of clinical manifestation.	10 (6+4)	CO1