

**LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034****M.Sc. DEGREE EXAMINATION – FOOD CHEMISTRY AND FOOD PROCESSING****FIRST SEMESTER – NOVEMBER 2022****PPF1MC04 – FOOD MICROBIOLOGY, HYGIENE AND SANITATION**

Date: 30-11-2022

Dept. No. 

Max. : 100 Marks

Time: 01:00 PM - 04:00 PM

**SECTION A****Answer ALL the questions**

<b>1</b>	<b>Choose the correct answer</b>	<b>(5 x 1 = 5 marks)</b>	
a)	Viruses that can infect bacteria and destroy one or more components of the starter culture are A. Bacteriodes B. Antimicrobial resistant organisms C. Bacteriophages. D. Bacteriostats.	K1	CO1
b)	Microbes that produce bright red coloured colonies or pigments which give colour to the spoiling food are A. <i>Serratia marcescens</i> B. <i>Aspergillus niger</i> C. <i>Fusarium</i> D. <i>Listeria monocytogenes</i>	K1	CO1
c)	Polymerase chain reaction is a rapid, and simple way of copying specific ..... fragments. A. RNA B. DNA C. Enzyme D. None of the above.	K1	CO1
d)	Sulphite added to food in concentrations of ..... or more is considered an allergenic food hazard. A. 0.10 mg/kg B. 100 mg/kg C. 1.00 mg/kg D. 10 mg/kg	K1	CO1
e)	Employees on recruitment should receive appropriate food safety and HACCP training to provide job specific knowledge and skills required to ensure preparation of safe food. This training is referred to as ..... A. On the job training B. Induction C. Refresher D. Evaluation	K1	CO1
<b>2</b>	<b>State whether TRUE or False</b>	<b>(5 x 1 = 5 marks)</b>	
a)	Vinegar fermentation is performed usually by acetic acid bacteria, from the genus <i>Aeromonas</i> , fermenting the alcohol from a variety of sources.	K2	CO1
b)	Iron chelating siderophores are used by <i>Pseudomonas species</i> to exhibit antagonism.	K2	CO1
c)	ELISA is an antigen antibody reaction and a plate based assay technique.	K2	CO1
d)	Ultraviolet light of 293.7 nm wavelength of UV radiation is the appropriate range for germicidal activity.	K2	CO1
e)	Food handler should cover cuts, burns, lesions and all other wounds between the	K2	CO1

	elbow and wrist with a waterproof band aid that is skin colored with gloves.		
<b>SECTION B</b>			
<b>Answer any THREE of the following in 500 words</b>		<b>(3 x 10 = 30 marks)</b>	
3.	Describe microbial growth curve with a diagram. Classify microorganisms on the basis of their growth capabilities at different temperature requirements and oxygen availabilities.	K3	CO2
4.	Write the predominant etiological agents that cause FBD and bring out the differences between food infection, food intoxication and toxico infection.	K3	CO2
5.	Give the principle and procedure for Western blotting technique used as a rapid detection method.	K3	CO2
6.	Explain microbial risk assessment.	K3	CO2
7.	Create an awareness poster to be displayed in a food industry to promote safe food production.	K3	CO2
<b>SECTION C</b>			
<b>Answer any TWO of the following in 500 words</b>		<b>(2 x 12.5= 25 marks)</b>	
8.	Choose any three microorganisms that are used in the production of sauerkraut and describe the role(s) they play in the formation of acid, flavours, textures and other properties of this food.	K4	CO3
9.	Elaborate on i) Protocol for investigation of food borne diseases. <b>(6 marks)</b> ii) Protocol of the medical policy to be followed in a food industry. <b>(6.5 marks)</b>	K4	CO3
10.	i) Write down the similarities and dissimilarities between conventional and rapid detection methods in microbial testing. <b>(5 marks)</b> ii) Explain the preventive actions that are in place to control food borne diseases. <b>(7.5 marks)</b>	K4	CO3
11.	Describe the major sources of contamination in foods and indicate the measures that should be implemented to reduce their incidence in foods.	K4	CO3
<b>SECTION D</b>			
<b>Answer any ONE of the following in 1000 words</b>		<b>(1 x 15 = 15 marks)</b>	
12.	i) Enumerate any ten useful applications of microbes in food processing. <b>(5 marks)</b> ii) Bring out the contrast between: a) Natural, controlled and back slopping fermentation. <b>(10 marks)</b> b) Homofermentation and Heterofermentation.	K5	CO4
13.	You are appointed as a Food microbiologist in a new enterprise that is manufacturing bakery products. You are asked to plan the entire sampling protocols for microbial testing of foods. Discuss the components of this plan with regard to Sampling, preparation for microbiological analysis and microbial testing of these bakery foods.	K5	CO4
<b>SECTION E</b>			
<b>Answer any ONE of the following in 1000 words</b>		<b>(1 x 20 = 20 marks)</b>	
14.	i) Write a note on any two factors that can retard microbial growth and spoilage in a sealed jar of mango pickle. <b>(10 marks)</b> ii) The mango pickle was prepared by a food handler who does not adhere to Good hygiene practices, using GM mustard, unapproved preservatives and stored in glass jars. Write a note on any 5 food related hazards that are likely to occur in this mango pickle. <b>(10 marks)</b>	K6	CO5
15.	i) Compile the sanitation guidelines for the cleaning of a food establishment and the integrated pest management programme that will prevent contamination of <i>food</i> at all points within the premises. <b>(15 marks)</b>	K6	CO5

ii) Prepare an inspection checklist to ensure the food establishment is well maintained and pest activity is under control.		
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**(5 marks)**

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