


Name:			
Enrolment No:			
<b>UPES</b> <b>End Semester Examination May – 2024</b>			
Course : Microbial Food Spoilage and Food Borne Diseases			
Semester : VI			
Program : B.Sc. Microbiology			
Duration : 3 Hours			
Course Code : HSMB3006		<b>Max. Marks: 100</b>	
Instructions : All questions are compulsory			
S. No.	Section A Short answer questions/ MCQ/T&F (20Q x 1.5M = 30 Marks)	Marks	COs
<b>Q1</b>	Define Minimal Infective Dose (MID).	<b>1.5</b>	<b>CO1</b>
<b>Q2</b>	Name a species responsible for thermophilic flat-sour defects in canned foods.	<b>1.5</b>	<b>CO1</b>
<b>Q3</b>	State the purpose of blanching vegetables.	<b>1.5</b>	<b>CO1</b>
<b>Q4</b>	Define Shelf Life.	<b>1.5</b>	<b>CO1</b>
<b>Q5</b>	Name an antimicrobial substance present in milk.	<b>1.5</b>	<b>CO1</b>
<b>Q6</b>	Define Buffering Capacity.	<b>1.5</b>	<b>CO2</b>
<b>Q7</b>	State the number of principles in a HACCP system? a) Four b) Seven c) Eighteen d) Ten	<b>1.5</b>	<b>CO3</b>
<b>Q8</b>	Mention a gas former involved in microbial food spoilage.	<b>1.5</b>	<b>CO2</b>
<b>Q9</b>	Large holes in swiss-type cheese is due to CO <sub>2</sub> production by: a) <i>Propionibacterium shermanii</i> b) <i>Penicillium roquefortii</i> c) <i>Aspergillus flavus</i> d) <i>Lactobacillus acidophilus</i>	<b>1.5</b>	<b>CO2</b>
<b>Q10</b>	Mention the toxin that causes Paralytic Shellfish disease.	<b>1.5</b>	<b>CO3</b>

<b>Q11</b>	Identify who is regarded as the father of canning: a) Nicolas Appert b) Louis Pasteur c) John Hall d) Bryan Dokin	<b>1.5</b>	<b>CO2</b>
<b>Q12</b>	The method of preventing or reducing pathogens in food products by combining many methods is called: a) Mixed preservation approach b) High pressure food preservation c) Hurdle technology d) Stumbling technology	<b>1.5</b>	<b>CO2</b>
<b>Q13</b>	Fermentation of glycerol in wine results in: a) Pousse b) Amertume c) Mousy flavor d) Tourne	<b>1.5</b>	<b>CO3</b>
<b>Q14</b>	The typical appearance of the blue mold cheeses is due to the growth of: a) <i>Lactobacillus lactis</i> b) <i>Penicillium roqueforti</i> c) <i>Lactobacillus bulgaricus</i> d) All of the above	<b>1.5</b>	<b>CO3</b>
<b>Q15</b>	The principal protein in milk is: a) Casein b) whey protein c) crude protein d) lactoglobulin	<b>1.5</b>	<b>CO2</b>
<b>Q16</b>	Example of soft cheese is: a) Cheddar b) Swiss c) Brick d) Cottage	<b>1.5</b>	<b>CO3</b>
<b>Q17</b>	Milk fermentation to produce cheese is done initially by inoculating with: a) <i>Saccharomyces cerevisiae</i> b) <i>Streptococcus lactis</i> and <i>Lactobacillus</i> spp. c) <i>Acetobacter</i> and <i>Gluconobacter</i> d) <i>Lactobacillus bulgaricus</i> and <i>Streptococcus thermophilus</i>	<b>1.5</b>	<b>CO2</b>

<b>Q18</b>	Kefir grains are composed of: a) Symbiotic mixture of Lactic acid bacteria, Yeast and Acetic acid bacteria b) <i>Bifidobacterium</i> and <i>Propionibacterium</i> c) <i>Aspergillus flavus</i> and <i>Penicillium</i> d) All of the above	<b>1.5</b>	<b>CO2</b>
<b>Q19</b>	State the full form of FSSAI.	<b>1.5</b>	<b>CO3</b>
<b>Q20</b>	Ester like flavors in butter is caused by: a) <i>P mephitica</i> b) <i>A hydrophila</i> c) <i>P fragi</i> d) <i>P synxantha</i>	<b>1.5</b>	<b>CO3</b>
<b>Section B</b> <b>(4Qx5M=20 Marks)</b>			
<b>Q1</b>	Explain briefly the different pathways food can turn rancid.	<b>5</b>	<b>CO2</b>
<b>Q2</b>	a) Define water activity. b) Explain how water activity can affect food preservation?	<b>5</b> (2+3)	<b>CO2</b>
<b>Q3</b>	Discuss with examples the role of Thermotrophic and Psychotrophic microbes in food spoilage.	<b>5</b>	<b>CO1</b>
<b>Q4</b>	“Food borne intoxication usually takes lesser time to initiate disease symptoms than food borne infections.” Justify the above statement with reason.	<b>5</b>	<b>CO1</b>
<b>Section C</b> <b>(2Qx15M=30 Marks)</b>			
<b>Q 1</b>	“ <i>B cereus</i> is a normal soil inhabitant and is frequently isolated from foods. <i>B cereus</i> food poisoning is not a frequently reportable disease and is therefore highly underestimated in official statistics”. (a) Describe food-poisoning syndromes caused due to <i>B cereus</i> . (b) Explain the role of various toxins involved during <i>B cereus</i> food-poisoning. (c) Discuss the causes and preventive measures of <i>B cereus</i> food-poisoning.	<b>15</b> (4+6+5)	<b>CO3</b>
<b>Q2</b>	(a) Define Pasteurization. (b) State the difference between Pasteurization and Tyndallization? (c) Explain the different methods of pasteurization. (d) Mention shelf-life of UHT milk. (e) Discuss the advantages and disadvantages of pasteurization?	<b>15</b> (2+2+6+2+3)	<b>CO2</b>

**Section D**  
**(2Qx10M=20 Marks)**

<b>Q 1</b>	(a) Mention the casual organism of Toxoplasmosis. (b) Discuss the causes, symptoms and preventive measures of toxoplasmosis.	<b>10</b> (1+9)	<b>CO3</b>
<b>Q2</b>	Describe in detail the various intrinsic and extrinsic factors influencing microbial food spoilage.	<b>10</b>	<b>CO1</b>