

2022

**MICROBIOLOGY — HONOURS**

**Paper : CC-11**

**(Food and Dairy Microbiology)**

**Full Marks : 50**

*The figures in the margin indicate full marks.*

*Candidates are required to give their answers in their own words  
as far as practicable.*

Answer *question no. 1* and *any three* questions from the rest.

1. Answer *any ten* questions :

2×10

- (a) "Most of the food-spoilage causing bacteria do not grow below 0.91 water activity."— Justify with reasons.
- (b) Name two causative agents of black rot disease in fruits and vegetables.
- (c) Why is Listeriosis considered as the most important food-borne disease? Mention the name of the organism responsible for it.
- (d) What do you mean by 'Putrefaction'? Explain with example.
- (e) What are xerophiles? Give two examples.
- (f) What is blanching? What is its effect on food?
- (g) How does Limulus lysate test help to identify a food-borne pathogen?
- (h) What are indicator microorganisms for food sanitary quality? Give two examples.
- (i) How does benzoic acid act as a food preserving agent? Which food products use benzoic acid as preservatives?
- (j) What is rennet? Mention its source for commercial cheese production.
- (k) "Food-borne intoxication usually take lesser time to initiate disease symptoms than food-borne infections."— Justify with reasons.
- (l) Name two microorganisms used as probiotics. Why are they considered as probiotics?
- (m) Name a food product, where antibiotic is used as protective agent. Do you think this application safe?
- (n) What is ropy milk? Which organism is responsible for it?
- (o) Why is it important to determine critical control point for HACCP analysis?

**Please Turn Over**

2. (a) Name two ways by which seafood spoilage can take place. Name two organisms associated with such spoilage. Give two examples of preservatives used to protect such type of food items.  
(b) Why pulses and grains are susceptible to mold attack during their storage?  
(c) Briefly describe a method by which mycotoxins can be detected in a spoiled food item. (2+2+2)+2+2
3. (a) How is Kefir prepared? How does it differ from Kumiss?  
(b) How acidophilus milk differs from Bulgarian buttermilk?  
(c) Mention two types of spoilage among canned foods caused by thermophilic microbes.  
(d) What is pascalization and how does it effectively decrease the load of food-borne pathogens? (2+2)+2+2+2
4. (a) How can you effectively control staphylococcal food intoxication?  
(b) Which types of foods are mainly involved in *Salmonella* and *Shigella* associated food infections?  
(c) What types of symptoms are associated with two above mentioned food infections?  
(d) How can you detect *E. coli* 0157:H7 strain from a contaminated food? 2+3+3+2
5. (a) What is Sauerkraut? Which microbes are associated with Sauerkraut preparation? Name any two types of spoilage associated with this fermented food.  
(b) Why do sausage and other ground meat products provide a better environment for the growth of food spoilage organisms than solid cuts of meats?  
(c) "Use of sodium nitrite in meat preservation is not healthy."— Justify the statement.  
(d) How does sodium nitrite keep the meat red in colour? (1+2+2)+2+2+1
6. (a) Write the shortcomings of HACCP analysis.  
(b) Which preservatives will you use for—  
(i) canned fish  
(ii) ground beef  
(iii) garlic paste  
(iv) bread?  
(c) How can you assess the VBNCs in spoiled food items?  
(d) Briefly give the flow diagram of Idli preparation.  
(e) Mention the condition of UHT pasteurization. 2+2+2+3+1
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