# RAMAKRISHNA MISSION VIDYAMANDIRA

**(Residential Autonomous College affiliated to University of Calcutta)**

**B.A./B.Sc. SIXTH SEMESTER EXAMINATION, MAY 2025**

**THIRD YEAR [BATCH 2022-25]**

Date : 16/05/2025

**MICROBIOLOGY (HONOURS)**

Time : 11 am – 1 pm

**Paper : CC 13**

Full Marks : 50

1. Answer **any ten** questions: [10×2]
   a) Which type of pasteurization process is most effective for milk sterilization and why?
   b) Why is liquid egg yolk considered more prone to contamination compared to liquid egg white?
   c) Name two causative agents of black spot disease in fruits and vegetables.
   d) Explain MAP and its significance.
   e) What is the significance of water activity ($A_w$) in microbial survival?
   f) How does limulus lysate test help to identify a food borne pathogen?
   g) Name one bacteria present in mayonnaise and mention their probable source.
   h) Describe the pathogenic activity of *Clostridium botulinum*.
   i) Give an example of soft cheese and why is it called so?
   j) Name the substrate and starter culture of tempeh.
   k) What is rennet? Mention its source for commercial cheese production.
   l) What is ropy milk? Which organism is responsible for it?
   m) How is HACCP associated with NASA?
   n) Why is agar agar resistant to microbial digestion?
   o) Write down the principle of latex agglutination assay.

Answer **any three** questions: [3×10]

2. a) Which types of foods are mainly involved in *Salmonella* and *Shigella*- associated food infection.
   b) Give examples of antimicrobial substances in food that affect microbial growth.
   c) Describe the principles behind the use of drying as a method of food preservation. How does kefir differ from kumiss? [3+2+(3+2)]

3. a) 'Use of sodium nitrite in meat preservation is not healthy'- justify the statement. How does sodium nitrite keep the meat red in color?
   b) Write down the types of spoilage of canned foods caused by thermophilic spore formers. Mention the condition of UHT pasteurization.
   c) What is sulfide stinker spoilage? Name the bacteria responsible for this spoilage. [(2+1)+(2+2)+(2+1)]

4. a) Write down two important biochemical changes during ageing of cheese.
   b) How is kefir prepared?
   c) What is the substrate of Kumis? Describe the fermentation process of Kumis mentioning two important environmental factors.
   d) What are indicator microorganisms for food sanitary quality? Give one example. [2+2+(1+3)+2]

5. a) Write down the etiological agent and major reservoir of Yersiniosis.
   b) Name the starter culture of the following fermented food:
      i) Dosa
      ii) Acidophilus milk
      iii) Cheese.
   c) What is Traveller's Diarrhoea? Write short note on food poisoning by *Clostridium botulinum*.

[2+3+(2+3)]

6. a) Define HACCP.
   b) Define Hazard in the light of HACCP. What metabolic activities of microbes may lead to food spoilage?
   c) Discuss the relevance of HACCP in the context of food safety. What is the high voltage pulse?

[2+(2+3)+(2+1)]

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