

**2020**

**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) What do you mean by therapeutic milk? Give an example.
  - (b) What do you mean by ripening of meat?
  - (c) How does modified atmosphere packaging help to prevent food spoilage?
  - (d) What is rennet? Mention its source for commercial cheese production.
  - (e) What is 12D treatment?
  - (f) 'Pickled fish gets least chance of contamination.' — Justify.
  - (g) Is it practical to use microwave to kill food-borne microbes? Answer with reasons.
  - (h) Name the chemical used as 'food sanitizer'. How does it function on microbes?
  - (i) How is egg stored commercially for making cake and pastry?
  - (j) 'Most of the fruit spoilage microbes belong to class fungi.'— Justify.
  - (k) Define osmotolerant microorganism with an example.
  - (l) Mention sources of gamma irradiation for food and state two advantages of this method.
  - (m) What is tempeh? How is it beneficial to us?
  - (n) What is ropy milk? Which organism is responsible for it?
  - (o) What is blanching? How does it help in food preservation?
2. (a) Suggest the chemical preservative (one for each) for nuts, pulses, fruit juice and cakes.
- (b) What do you mean by the terms 'D-value' and 'Z-value' of an organism? State the significance of these in food microbiology.
- (c) Distinguish between 'food intoxication' and 'food infection'.
- (d) Draw a flow chart for commercial preparation of soy sauce. 2+(2+1)+2+3

**Please Turn Over**

3. State the toxins, foods involved, disease symptoms and preventive measures of **any two** of the following :
- (a) *Clostridium botulinum*
  - (b) *Staphylococcus aureus*
  - (c) *Vibrio parahemolyticus*
  - (d) *Escherichia coli*. (1+1+1.5+1.5)×2
4. (a) Name one rapid detection method of food borne pathogen. State its two advantages over cultural method.
- (b) Why are vegetables spoiled sometimes even at refrigerated temperature?
  - (c) Write a brief account on *pascalization*.
  - (d) Compare methods of LTH, HTST and UHT for thermal treatment. State with reason which one is the most suitable method for longer shelf-life of milk. (2+1)+1+2+(3+1)
5. (a) Why is organic acid considered as good food preservative?
- (b) What is tyndallization?
  - (c) Define mycotoxin with an example. State two physical and two chemical control measures of mycotoxin in food.
  - (d) Mention the difference between kumiss and kefir. 2+2+(2+2)+2
6. (a) In what way phage biosanitization is effective in food industry?
- (b) What are bacteriocins? How does it affect microbes?
  - (c) What is putrefaction?
  - (d) 'Phosphatase test is essential for milk.'— Justify.
  - (e) State significance of HACCP. 2+(1+1)+2+2+2
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