

2021

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** from the rest.

1. Answer **any ten** questions : 2×10
- (a) Differentiate between prebiotic and probiotic. Give examples.
 - (b) Why is extensive treatment with γ -irradiation of food detrimental for health?
 - (c) How are cut vegetables preserved for a long time?
 - (d) Why botulism is common in improperly canned fish?
 - (e) Define Pasteurization. Mention the conditions for pasteurization of milk.
 - (f) Why is fungal contamination common in jam, jelly and pickle? Name one preservative for the same.
 - (g) Suggest a food preservation method for powdered milk. Justify with reason.
 - (h) "At least 60% of the food poisoning cases are mediated by *Staphylococcus aureus*."— Justify the statement with reason.
 - (i) How is ready to eat milk being preserved?
 - (j) What starter culture would you choose for industrial production of kefir?
 - (k) What is Thermal Death Time?
 - (l) What is the purpose of salting during cheese preparation?
 - (m) What does HACCP stand for?
 - (n) What are aflatoxins? Name one producer microorganism.
 - (o) What is phosphatase test? Mention its application.
2. (a) What are indicator organisms for accessing food sanitary quality? What features should they possess to be used ideally as an indicator microorganisms? Give examples.
- (b) Name two microorganisms associated with spoilage of cheese during its manufacture.
- (c) Name the foods that can cause *Campylobacter jejuni* infection. What measures can be taken to reduce the risk of the contamination of food by *C. jejuni*? (2+2+1)+2+(1½+1½)

Please Turn Over

3. (a) Which preservative would you choose for the following food items?
 (i) tea bag (ii) olive oil (iii) soy sauce (iv) rice.
- (b) Which virulence factor of *Clostridium botulinum* is responsible for the disease botulism? Mention the symptoms associated with the disease.
- (c) What do you mean by Traveller's Diarrhoea? Name the causative organism. How can you prevent food infection caused by *Bacillus cereus*?
- (d) Mention the name of a selective culture media used for selecting *Salmonella sp.*
 2+(1+2)+(1+1+2)+1
4. (a) Why does a food get spoiled?
- (b) Which products are formed during the process of putrefaction?
- (c) What do you understand by shelf life of a food?
- (d) What do you mean by whiskers of meat? What type of microorganisms are responsible for that?
- (e) Why do you need to preserve pasteurized milk under refrigerator? 2+2+1+(2+1)+2
5. (a) Which food pathogens can be targeted by the use of Bacteriophage? Would you think this technology is going to be successful commercially such as in meat industry?
- (b) What is dipstick test for identification of food-borne pathogen? Name the test whose principle is mainly followed in this test.
- (c) State the toxins, foods involved and disease symptoms of the following :
 (i) *Listeria monocytogenes*
 (ii) *Yersinia enterocolitica.* (1+2)+(1+1)+(2½+2½)
6. (a) Draw a flowchart for commercial preparation of yogurt.
- (b) What is ripening of cheese? Discuss the method of ripening of cheese.
- (c) What is the function of secondary culture during the fermentation of milk?
- (d) How is grading of milk done? 3+(1+2)+2+2
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