

**FOOD BIOTECHNOLOGY
(BIOT 3131)**

Time Allotted : 3 hrs

Full Marks : 70

Figures out of the right margin indicate full marks.

Candidates are required to answer Group A and any 5 (five) from Group B to E, taking at least one from each group.

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

**Group – A
(Multiple Choice Type Questions)**

1. Choose the correct alternative for the following: **10 × 1 = 10**

- (i) Pectinase enzyme is mainly used in
(a) Baking industry (b) Fruit juice production industry
(c) Oil industry (d) None of these.
- (ii) Chill hazing mainly occur during production of
(a) Beer (b) Bread (c) Curd (d) None of these.
- (iii) Mycotoxins are produced by
(a) Cyanobacteria (b) Archaeobacteria (c) Fungi (d) None of these.
- (iv) Fumonisin are produced by
(a) Cyanobacteria (b) Archaeobacteria (c) Fungi (d) None of these.
- (v) Commonly used chelating agent is
(a) Vanillin (b) Asparagine (c) Ethylenediamine (d) None of these.
- (vi) Lactoferrin is present in
(a) Freshly drawn milk (b) Pasteurized milk
(c) Boiled milk (d) Flash-pasteurized milk.
- (vii) Mineral water is mainly treated by
(a) Radiation (b) Filtration
(c) Pasteurization (d) High temperature.
- (viii) Radurization is different from Rad-appertization in
(a) Duration of treatment (b) Dose of radiation
(c) Temperature of treatment (d) Pressure used.
- (ix) Kumiss is similar to
(a) Kefir (b) Tamari sauce (c) Natto (d) Koji.
- (x) Limburger is a
(a) hard cheese (b) semihard cheese
(c) soft cheese (d) hard cheese with large holes.

Group- B

2. (a) What are the factors affecting food spoilage? Classify food according to their ease of spoilage. [(CO1)(Remember/LOCQ)]
(b) Discuss different types of spoilages of milk. Show the effectiveness of pasteurization to stop them. [(CO1)(Understand/HOCQ)]
(3 + 3) + (3 + 3) = 12
3. (a) Discuss the molecular mechanism of any one bacterial toxin. [(CO5)(Analyze/IOCQ)]
(b) Discuss the conditions of a cold storage room. [(CO2)(Understand/LOCQ)]
6 + 6 = 12

Group - C

4. (a) What is the advantage of production of single cell protein (SCP)? [(CO6)(Analyze/LOCQ)]
(b) What are its disadvantages as human food? [(CO6)(Evaluate/HOCQ)]
(c) Write some commonly used microorganisms and their corresponding substrates utilized for the production of SCP? [(CO6)(Understand/IOCQ)]
3 + 3 + 6 = 12
5. (a) Discuss the different steps of fermentation of cabbage. What important role does NaCl play here? [(CO3)(Analyze/IOCQ)]
(b) How buttermilk is produced? [(CO3)(Analyze/IOCQ)]
(5 + 3) + 4 = 12

Group - D

6. (a) Mention the role of lactase in icecream preparation. [(CO4)(Remember/LOCQ)]
(b) What is transesterification reaction? Give example. [(CO4)(Understand/IOCQ)]
(c) Explain how amylopectin interfere in bread production process. [(CO4)(Analyze/IOCQ)]
4 + 4 + 4 = 12
7. (a) Mention the role of protease in biscuit preparation. [(CO5)(Evaluate/IOCQ)]
(b) Distinguish between liquifying and saccharifying amylases. [(CO4)(Understand/LOCQ)]
(c) Explain how sweet wine is prepared. [(CO5)(Analyze/HOCQ)]
4 + 4 + 4 = 12

Group - E

8. (a) Discuss the reaction of oxygen with myoglobin. [(CO4)(Remember/LOCQ)]
(b) What are humectants? Give example. [(CO5)(Understand/IOCQ)]

(c) Mention the role of any two metal contaminants present in food.

[(CO5)(Analyse/IOCQ)]

4 + 4 + 4 = 12

9. (a) Discuss the mode of action of parabens and epoxide.

[(CO5)(Remember/IOCQ)]

(b) Explain the mode of action of chlorophyllase.

[(CO4)(Understand/IOCQ)]

(c) What is delayed bitterness?

[(CO4)(Analyse/HOCQ)]

5 + 4 + 3 = 12

Cognition Level	LOCQ	IOCQ	HOCQ
Percentage distribution	28.13	55.20	16.67

Course Outcome (CO):

After completing this course, students will be able to:

1. Apply different food preservation techniques
2. Know different food processing techniques
3. Analyse different processed food
4. Application of enzymes in food industry
5. Detect adulteration and toxic components of food
6. Gain knowledge on different functional food and GMO

*LOCQ: Lower Order Cognitive Question; IOCQ: Intermediate Order Cognitive Question; HOCQ: Higher Order Cognitive Question.

