

**FOOD BIOTECHNOLOGY  
(BIOT 3131)**

**Time Allotted : 2½ hrs**

**Full Marks : 60**

*Figures out of the right margin indicate full marks.*

*Candidates are required to answer Group A and any 4 (four) from Group B to E, taking one from each group.*

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

**Group – A**

1. Answer any twelve:

**12 × 1 = 12**

*Choose the correct alternative for the following*

- (i) Lactoferrin is present in  
(a) Freshly drawn milk (b) Pasteurized milk  
(c) Raw milk (d) Boiled milk.
- (ii) Radurization is  
(a) Low dose pasteurization (b) Low dose radiation pasteurization  
(c) Cold sterilization (d) Appertization.
- (iii) Sauerkraut is produced by  
(a) fermentation of shredded cabbage by propionic acid bacteria  
(b) fermentation of shredded cabbage by lactic acid bacteria  
(c) fermentation of fresh cabbage by lactic acid bacteria  
(d) fermentation of fresh cabbage by acetic acid bacteria.
- (iv) Enterotoxins are produced by  
(a) Clostridium botulinum (b) Staphylococcus aureus  
(c) Streptococcus pneumonia (d) Bacillus subtilis.
- (v) Minchin is  
(a) Fermented wheat gluten (b) Fermented corn  
(c) Ripened soybean cheese (d) Unripened soybean cheese
- (vi) Renin is used for production of  
(a) Bread (b) Fructose syrup (c) Cheese (d) None of these.
- (vii) Pectinase is mainly used in clarification of  
(a) Fruit juice (b) Milk (c) Beer (d) None of these.
- (viii) Glutathione act as antioxidant due to presence of  
(a) Sulphydryl group (b) Carbonyl group  
(c) Hydroxyl group (d) none of these.

- (ix) Allium present in onion is a  
 (a) Colouring agent (b) Flavouring agent  
 (c) Humecant (d) None of these.
- (x) Ethylene oxide is  
 (a) Gaseous sterilising agent (b) solid sterilising agent  
 (c) Liquid sterilising agent (d) None of these.

*Fill in the blanks with the correct word*

- (xi) Sulphur containing volatile flavouring agent is \_\_\_\_\_.
- (xii) Flavonoids are food \_\_\_\_\_ agents.
- (xiii) Acrylamide formation is inhibited by \_\_\_\_\_ enzyme.
- (xiv) Spinach is \_\_\_\_\_ before canning.
- (xv) One example of unripened cheese is \_\_\_\_\_.

### Group - B

2. (a) How pH of a food affects the nature of spoilage flora? [[CO3](Analyse/HOCQ)]  
 (b) What is TDT? How it is determined? [[CO4](Remember/LOCQ)]  
 (c) What are IMF? Give examples. [[CO2](Apply/IOCQ)]  
**3 + (1 + 4) + 4 = 12**
3. (a) Why oils and butters are not easily spoiled? What are the ways of oil spoilage? [[CO3](Analyse/HOCQ)]  
 (b) Differentiate between rancidity and putrefaction. [[CO4](Remember/LOCQ)]  
 (c) Define ERV and mention its importance. [[CO2](Apply/IOCQ)]  
**4 + 4 + 4 = 12**

### Group - C

4. (a) What is SCP? Mention its advantages as food. [[CO3](Analyse/HOCQ)]  
 (b) What is the most important SCP used as human food and why? [[CO4](Remember/LOCQ)]  
 (c) Describe schematically the production process of *Agaricus bisporus*. [[CO2](Apply/IOCQ)]  
**3 + 2 + 7 = 12**
5. (a) Define the following:  
 (i) Mashing (ii) Malting (iii) Hop (iv) Wort. [[CO3](Analyse/HOCQ)]  
 (b) What is the importance of malo-lactate fermentation in wine industry? [[CO2](Apply/IOCQ)]  
**(2 × 4) + 4 = 12**

### Group - D

6. (a) Distinguish between transesterification and interesterification. [[CO3](Analyse/HOCQ)]

- (b) Justify the role of Maillard reaction in baking industry. [[CO4](Remember/LOCQ)]  
 (c) Discuss the chill hazing process. [[CO2](Apply/IOCQ)]  
 (d) Describe briefly the role of glucose isomerase. [[CO2](Apply/IOCQ)]  
**3 + 3 + 3 + 3 = 12**
7. (a) Mention the role of lactase and lactate dehydrogenase in dairy industry. [[CO3](Analyse/HOCQ)]  
 (b) Distinguish between liquefying amylase and saccharifying amylase. [[CO4](Remember/LOCQ)]  
 (c) Explain the importance of preference of fructose in corn syrup. [[CO2](Apply/IOCQ)]  
**4 + 4 + 4 = 12**

### Group - E

8. (a) Analyse the effect of humecants. [[CO3](Analyse/HOCQ)]  
 (b) Mention one bacterial neurotoxin and its mode of action. [[CO4](Remember/LOCQ)]  
 (c) Discuss the role of gaseous sterilizing agent. [[CO2](Apply/IOCQ)]  
 (d) Define foodborne intoxication. [[CO2](Apply/IOCQ)]  
**3 + 3 + 3 + 3 = 12**
9. (a) Analyse the mode of action of one bacterial cytotoxin and one fungal cytotoxin. [[CO3](Analyse/HOCQ)]  
 (b) Mention the method of determination of spoilage reaction. [[CO4](Remember/LOCQ)]  
 (c) Discuss the role of parabens. [[CO2](Apply/IOCQ)]  
 (d) Define rancidity reaction. [[CO2](Apply/IOCQ)]  
**6 + 3 + 2 + 1 = 12**

Cognition Level	LOCQ	IOCQ	HOCQ
Percentage distribution	25	39.58	35.42

