

**ADVANCED FOOD BIOTECHNOLOGY
(BIOT 5242)**

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) Polyhydroxyalcohol is added to food as
 - (a) Preservative
 - (b) Emulsifier
 - (c) Humecant
 - (d) None of these.
 - (ii) Flavour of brassica is mainly due to the presence of
 - (a) Isothiocyanate
 - (b) Tri-methyl amine
 - (c) Ethylene di amine
 - (d) None of these.
 - (iii) Isoflavanones are
 - (a) Flavonoids
 - (b) Terpenoids
 - (c) Antioxidants
 - (d) None of these.
 - (iv) Naringins are present in
 - (a) citrus fruits
 - (b) green leafy vegetable
 - (c) sea weeds
 - (d) none of these.
 - (v) Neurotoxins are produced by
 - (a) *A. Flavus*
 - (b) *A. oryzae*
 - (c) *C.botulinum*
 - (d) None of these.
 - (vi) Enterotoxins are produced by
 - (a) *A. Flavus*
 - (b) *A. oryzae*
 - (c) *A. Niger*
 - (d) None of these.
 - (vii) Fish oil is the only source for
 - (a) NSP
 - (b) Curcumin
 - (c) DHA
 - (d) dietary fibre.
 - (viii) SCFA can be obtained from:
 - (a) soluble dietary fibre
 - (b) fish oil
 - (c) mother's milk
 - (d) insoluble dietary fibre.

- (ix) Prune is one of the richest source of
(a) essential oil (b) soluble dietary fibre
(c) insoluble dietary fibre (d) both (b) and (c).
- (x) In flocculation,
(a) Complete phase separation of emulsion happens
(b) Incomplete phase separation of emulsion happens
(c) Particles coalesce
(d) Particles form clumps

Group- B

2. (a) What is chlorophyllase? Why green leafy vegetables change their colour during storage? (CO1,2/ Remember/LOCQ)
(b) Mention the effect of oxygen on myoglobin containing food. (CO1/ Understand/IOCQ)
(2 + 4) + 6 = 12
3. (a) What is delayed bitterness? How can we prevent it? (CO1,2/Remember/LOCQ)
(b) Mention any two Sulphur containing food flavouring agents and their mode of action. (CO 1/ Understand/IOCQ)
(2 + 4) + 6 = 12

Group - C

4. (a) Mention one method microbial flavouring agent production. (CO3/Understand/LOCQ)
(b) Define pectinolysis. (CO3/Remember/IOCQ)
(c) Mention two bacteria involved in food-borne infection. (CO3/Remember/IOCQ)
4 + 4 + 4 = 12
5. (a) Mention one chelating agent and its mode of action. (CO3/Remember/LOCQ)
(b) Define rancidity with example. (CO3/Understand/IOCQ)
(c) Mention any two metals that cause food spoilage. (CO3/Remember/HOCQ)
4 + 4 + 4 = 12

Group - D

6. (a) What is the relationship between nutraceuticals and functional food? (CO6/Describe/LOCQ)
(b) What is the source of curcumin? How curcumin is obtained from it? Why it is regarded as nutraceutical? What class of nutraceutical it belongs to? [(CO2)(Remember/LOCQ)]
3 + (1 + 3 + 3 + 2) = 12

7. (a) What are EFAs? Give example. Why they are essential? (CO6/Describe/LOCQ)
(b) What is the structure of omega-3-fatty acids? What are their health benefits? (CO 3/Justify/IOCQ)
(c) Write down the production process of Espresso coffee. (CO4/Understand/HOCQ)
4 + 4 + 4 = 12

Group - E

8. (a) Name one natural antioxidant and how it prevent oxidative reaction? (CO4/Understand/LOCQ)
(b) Write notes on metal contaminants present in food. (CO 3/Remember/IOCQ)
(c) Name one pigment molecule present in food and write its mode of action. (CO5/Remember/HOCQ)
4 + 5 + 3 = 12
9. (a) Why soyabean proteins are important? (CO3/Understand/IOCQ)
(b) Briefly discuss the spoilage mechanism of dairy products. (CO1/Remember/LOCQ)
6 + 6 = 12

Cognition Level	LOCQ	IOCQ	HOCQ
Percentage distribution	53.13	35.42	11.45

Course Outcome (CO):

After completing this course, students will be able to:

CO1: Apply different food preservation techniques

CO2: Know different food processing techniques

CO3: Analyse different types of processed food

CO4: Application of enzymes in food industry

CO5: Detect adulteration and toxic food components

CO6: Gain knowledge of different functional food and GMO

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

