

**ADVANCED FOOD BIOTECHNOLOGY**  
**(BIOT 5242)**

**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) The example of oil-in-water emulsion is
  - (a) Mayonnaise
  - (b) Butter
  - (c) Espresso coffee
  - (d) Salad dressing
- (ii) A vegetarian substitute for gelatin is
  - (a) Alginic acid
  - (b) Xanthan gum
  - (c) Guar gum
  - (d) Agar-agar
- (iii) Broccoli contains the following Nutraceutical
  - (a) Sulphoraphane
  - (b) Docosahexanoic acid
  - (c) MUFA
  - (d) Linoleic acid
- (iv) The example of NSP
  - (a)  $\beta$ -glucan
  - (b) Chitin
  - (c) Glycosaminoglycan
  - (d) All of the above
- (v) Saponins are detected by
  - (a) Hemolytic activity
  - (b) Surface active properties
  - (c) Both
  - (d) None
- (vi) Propionic acid is mainly used in preparation of
  - (a) Bread
  - (b) Fructose syrup
  - (c) Cheese
  - (d) None of these
- (vii) Smooth surface of ice cream is mainly due to presence of
  - (a) Lactase
  - (b) Amylase
  - (c) cellulase
  - (d) None of these
- (viii) Spoilage of green vegetables can be prevented by
  - (a) Lactase
  - (b) Cholorophyllase
  - (c) Amylase
  - (d) None of these

(ix) Allium present in onion is a  
(a) Colouring agent  
(c) Humectant  
(b) Flavouring agent  
(d) None of these

(x) Ethylene oxide is  
(a) Gaseous sterilising agent  
(c) Liquid sterilising agent  
(b) solid sterilising agent  
(d) None of these

*Fill in the blanks with the correct word*

(xi) Botulin is type of \_\_\_\_\_.

(xii) Chill hazing is very common in \_\_\_\_\_ production.

(xiii) Pimpirin acts as an \_\_\_\_\_.

(xiv) Mustard powder is added in food as \_\_\_\_\_.

(xv) Insoluble dietary fibre helps to prevent \_\_\_\_\_.

## Group - B

2. (a) What are emulsion food? Give examples of different classes of emulsion food.  
[(CO3)(Analyse/HOCQ)]

(b) What is the role of emulsifier in food industry? Elaborate giving suitable example.  
[(CO4)(Apply/IOCQ)]

**(3 + 3) + (3 + 3) = 12**

3. (a) What are thickeners? What is their role in food industry? [(CO3)(Analyse/HOCQ)]

(b) Give examples of food gum obtained from the following sources:  
Bacteria, Plant, Sea weed, Algae. [(CO1)(Remember/LOCQ)]

(c) Mention the role of lecithin in mayonnaise. [(CO2)(Apply/IOCQ)]

**(2 + 2) + 4 + 4 = 12**

### Group - C

4. (a) Analyse the advantages and disadvantages of good quality protein. *[(CO3)(Analyse/HOCQ)]*  
(b) Describe briefly how membrane bound antioxidant eliminate ROS. *[(CO4)(Remember/LOCQ)]*  
(c) Explain how size of food particle and pH involved in spoilage reaction. *[(CO2)(Apply/IOCQ)]*

**5 + 3 + 4 = 12**

5. (a) Analyse with suitable example foodborne infection process. *[(CO3)(Analyse/HOCQ)]*  
(b) What are the advantages and disadvantages of chlorophyllase enzyme? *[(CO4)(Remember/LOCQ)]*  
(c) Illustrate the term ergotism. *[(CO2)(Apply/IOCQ)]*

**5 + 4 + 3 = 12**

## Group - D

6. (a) Discuss the role of the following as food supplements:  
Chitin, Inulin. *[(CO5)(Analyse/HOCQ)]*

(b) What is the FDA approved daily intake of Psyllium seed husk? Mention the beneficial effect of taking it regularly. *[(CO4)(Remember/LOCQ)]*

**(3 + 3) + (1 + 5) = 12**

7. (a) Mention the role of Curcumin as nutraceutical. *[(CO6)(Analyse/HOCQ)]*

(b) Explain how it is solubilised. *[(CO4)(Remember/LOCQ)]*

(c) Mention the role of GPC in regular diet. How it can be obtained? *[(CO6)(Apply/LOCQ)]*

**4 + 4 + 4 = 12**

## Group - E

8. (a) Define food additives. *[(CO3)(Analyse/HOCQ)]*

(b) Mention any three natural food preservatives and their mode of action. *[(CO4)(Remember/LOCQ)]*

(c) Illustratr the role of EDTA. *[(CO2)(Apply/LOCQ)]*

(d) Discuss the role of parabens. *[(CO2)(Apply/LOCQ)]*

**2 + 5 + 3 + 2 = 12**

9. (a) Explain why chlorophyll containing food changes their colour? *[(CO3)(Analyse/HOCQ)]*

(b) Mention two bacterial exotoxins and their mode of action. *[(CO4)(Remember/LOCQ)]*

(c) Discuss the role of sulphurdioxide as food preservative. *[(CO2)(Apply/LOCQ)]*

**4 + 4 + 4 = 12**

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Cognition Level	LOCQ	IOCQ	HOCQ
Percentage distribution	29.16	33.33	37.51

