FOOD BIOTECHNOLOGY
(BIOT 4141)

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) Pasteurization employs a time –temperature relation of
(a) 68◦C for 30 mins (b) 72◦C for 15 secs
(c) Either (a) or (b) (d) None of these.

(ii) Food preservative is
(a) Diacetyl (b) Vanillin
(c) Lycopene (d) Epoxide.

(iii) Gelatinized starch is rapidly liquefied by
(a) Amyloglucosidase (b) Amylase
(c) Pullulanase (d) Dextranase.

(iv) Pasteurization and autoclaving are
(a) Identical process (b) Totally different process
(c) Similar process (d) No relation.

(v) Lipase is used to improve the flavour of
(a) Cheese (b) Fruit juice
(c) Bread (d) None of these.

(vi) *S.typhimurium* produces
(a) Neurotoxin (b) Enterotoxins
(c) Both (a) and (b) (d) Food poison.

(vii) SCP refers to
(a) Fungal protein (b) Microbial protein
(c) Single cell protein (d) all of them.

(viii) Dill herbs are added in
(a) Pickle (b) Yogurt
(c) Buttermilk (d) Cheese.

(ix) Burnt flavour in milk is often confused with
(a) Overheating (b) Overpasteurization
(c) Spoilage by *Streptococcus lactis* (d) caramelization.

(x) Radurization and radicidation are
(a) Refrigeration process (b) Freezing process
(c) Irradiation process (d) Drying process.

Group – B

2. (a) What are the different conditions of refrigeration? How is food stored in cold storages?

(b) Discuss the different methods of drying as food preservation technique.

(3 + 3) + 6 =12

3. (a) What is the most common food poisoning? Discuss the molecular mechanism of toxin action.

(b) Discuss the different methods of canning procedure.

(2 + 4) + 6 = 12

Group – C

4. Define the following: **(4 × 3) = 12**
(i) Mashing
(ii) Malting
(iii) Hop
(iv) Wort.

5. (a) Discuss the different steps of fermentation of cabbage. What important role does NaCl play here?

(b) Discuss the importance of malo-lactate fermentation in wine industry.

(6 + 2) + 4 = 12

Group – D

6. (a) Write the mode of action of glucose isomerase.

(b) Why rennin is used in dairy industry?

(c) What is Transesterification reaction and why it is important?

2 + 4 + 6 = 12

7. (a) What is stailing property and how it is removed?

   (b) Briefly describe the role of asperaginase and pectinase in food industry.

   (c) What is putrefaction?

4 + 6 + 2 = 12

Group – E

8. (a) What is chelating agent? Write its role in food industry.

   (b) Mention the mode of action of enterotoxin and amanitin.

   (c) Name any two chemical preservatives and explain their functions.

(2 + 2) + 5 + 3 = 12

9. (a) Name one natural antioxidant and how does it prevent oxidative reaction?

   (b) How food preservatives prevent the growth of microbes in food?

   (c) Name one pigment molecule present in food and write its mode of action.

4 + 5 + 3 = 12

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