

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 alternatives for the following: **10 x 1=10**

- (i) Oat is rich in dietary fibre  
(a) BETA glucan (b) ALPHA glucan  
(c) carotenoids (d) none of these.
- (ii) Conglycinin is  
(a) 7s globulin (b) 9s globulin  
(c) 11s globulin (d) none of these.
- (iii) Agar is food gum obtained from  
(a) bacteria (b) fungi  
(c) tree (d) sea weeds.
- (iv) Emulsifying agent present in egg is  
(a) Egg white (b) Egg shell  
(c) Egg yolk (d) none of these.
- (v) Calcium propionate is used as preservative in  
(a) Fruit juice (b) Bakery  
(c) Meat product (d) none of these.

- (vi) Aflatoxins are produced by  
(a) *A flavus* (b) *A oryzae*  
(c) *A niger* (d) *Penicillium sp*
- (vii) Mustard powder is added in food as  
(a) antioxidant (b) emulsifier  
(c) preservative (d) fat replacer
- (viii) DHA is obtained by  
(a) solvent extraction of turmeric (b) distillation  
(c) concentrating fish oil (d) none of these
- (ix) Enzyme necessary for plant oil modification  
(a) Catalase (b) Peroxidase  
(c) Elongase (d) none of these
- (x) RNA can be used as nutraceutical in  
(a) heart disease (b) brain disorder  
(c) AIDS (d) cancer

**Group – B**

2. (a) Which types of food components cause allergic reaction to us? Mention different types of food allergic reactions found in human and a few foods that frequently cause allergy?
- (b) Why edible gums are added in food preparations? Which gums are present in tooth paste and chewing gum?
- 6 + 4 + 2 = 12**
3. (a) Why preservatives are added in food?
- (b) What factors are responsible for deterioration of food preparation quality?
- (c) Shortly describe each classes of food preservatives.
- 2 + 3 + 7 = 12**

**Group - C**

4. (a) Write notes on Mycobacterium And Salmonella contamination of different foods.
- (b) Write different methods for detection of food pathogens.  
**7 + 5 = 12**
5. (a) What is mycotoxin? Why toxins in food or food grains cause serious health hazards?
- (b) Discuss different types of mycotoxin producing microorganism? How mycotoxins are detected?  
**(1+2) + (6 +3) = 12**

**Group - D**

6. (a) Write any two methods for genetic modification of plant oil.
- (b) Name three different antioxidants and discuss the mechanism how these antioxidants eliminate ROS.  
**5 + 7 = 12**
7. (a) Name any three phytochemicals with their source and functions.
- (b) Write notes on soyabean protein and carotinoid compounds.  
**6 + 6 = 12**

**Group - E**

8. (a) What are antioxidants? Compare the beneficial effects of natural and artificial antioxidants.
- (b) What is an emulsion food? Give three examples. Describe the process of preparation of espresso coffee.  
**(3+3) + (3+3) = 12**

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9. (a) Give an account of genetic engineering techniques for detoxification of cereals.
- (b) Compare and contrast between different types of artificial sweeteners.

**6 + 6 = 12**