

Roll no. _____

Department of Food Technology, SIST
Jamia Hamdard, New Delhi-110062
END SEMESTER EXAMINATION-July 2024
(B.Tech Food Technology-Semester IV)
Paper Title: Food Biotechnology and Functional Foods
Paper Code: BFTC-404

2024
B.Tech
4th Sem.

Time allotted: 3 Hrs

Max Marks: 60

Note: Section A is compulsory. Attempt any five questions from Section B. Attempt any two questions from Section C. Do not write anything on the question paper.

Section-A (Attempt All)

Ques 1. Multiple Choice Questions:

(5)

(1) Tempeh, Miso, and Natto are fermented products of:

- a. Cabbage b. Soyabean c. Rice d. Milk

(2) _____ is a bioactive compound predominantly found in Saffron.

- a. Crocin b. Safranine c. Diadzein d. Curcumin

(3) Capsaicin is an active compound of:

- a. Garlic b. Black Pepper c. Chili Pepper d. Onion

(4) What does the acronym DASH stand for in the context of the DASH diet?

- a. Dietary and supplementary health b. Daily Approach to sustained health
c. Dietary approaches to stop hypertension d. Diet and activity for sustainable health

(5) What is the primary role of a sparger in a fermenter?

- a. To mix the fermentation broth thoroughly
b. To control the temperature of the fermentation process
c. To introduce sterile air or oxygen into the fermentation broth
d. To measure the pH level of the fermentation broth

Section- B (Attempt any 5) (6 Marks Each)

Q1. Classify polyphenolics with examples and write about their occurrence. Explain their biological properties.

Q2. Write in detail about the nutraceuticals and functional foods relevant in cardiovascular diseases.

Q3. What are dietary fibers? Classify them based on solubility with suitable examples.

Q4. Distinguish between homofermentative and heterofermentative lactic acid production. Mention primary uses of lactic acid in industry.

Q5. What is NAFLD? Name two types of foods beneficial for promoting liver health. Explain how these foods contribute to liver function.

Q6. What microorganism is most commonly used in the industrial production of citric acid? Outline the key steps in the microbial production of citric acid.

Q7. Define and give examples of each: Medical foods, Dietary supplements, Functional Foods, Nutraceuticals and Prebiotics.

Section C (Attempt any 2) (12.5 Marks Each)

Q1. What are transgenic plant foods? Provide examples of transgenic crops and enlist safety considerations when assessing transgenic plant foods for human consumption? Discuss the controversy surrounding genetically modified organisms in food.

Q2. Discuss the microbial production of algal single cell protein (SCP). Include in your answer the production process, applications, merits, and demerits of algal SCP.

Q3. Differentiate between solid-state and submerged fermentation. Describe any three types of fermenters/bioreactors commonly used at the industrial scale, including diagrams and applications.

Q4. Draw a well labeled diagram for a basic transcription unit. Give a brief account on post-transcriptional modifications. Explain the role of the 5' cap, poly-A tail, and splicing in mRNA processing.

CO-PO Mapping:

Section A		Section B		Section C	
1	CO 1, 2, 3, 4; PO 1, 3, 4, 5	1	CO1, 2; PO1, 2	1	CO4; PO2, 3
-	-	2	CO3; PO2	2	CO1,2 ; PO1, 2, 3
-	-	3	CO3, 4; PO2, 4, 5	3	CO1,2 ; PO3, 5, 6
-	-	4	CO1, 2; PO5	4	CO1; PO2
-	-	5	CO3, 4; PO1, 2	-	-
-	-	6	CO2, 4; PO1, 2, 4	-	-
-	-	7	CO3, 4; PO1, 2		

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