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VIVEKANANDHA COLLEGE OF ENGINEERING FOR WOMEN  
[AUTONOMOUS INSTITUTION AFFILIATED TO ANNA UNIVERSITY, CHENNAI]  
Elayampalayam – 637 205, Tiruchengode, Namakkal Dt., Tamil Nadu.

**Question Paper Code: 90010**

B.E. / B.Tech. DEGREE END-SEMESTER EXAMINATIONS – NOV. / DEC. 2024

Seventh Semester

Biotechnology

U19BTV42 – FERMENTATION PRODUCTS

(Regulation 2019)

Time: Three Hours

Maximum: 100 Marks

Answer ALL the questions

Knowledge Levels (KL)	K1 – Remembering	K3 – Applying	K5 - Evaluating
	K2 – Understanding	K4 – Analyzing	K6 - Creating

**PART – A**

(10 x 2 = 20 Marks)

Q.No.	Questions	Marks	KL	CO
1.	How does fermentation affect nutrient availability?	2	K1	CO1
2.	List out any two health benefits of fermented foods.	2	K1	CO1
3.	Define the basic principles of fermentation.	2	K2	CO2
4.	What is pure culture in fermentation?	2	K2	CO2
5.	How is Sauerkraut grown?	2	K3	CO3
6.	What are biogenic amines in fermented foods?	2	K3	CO3
7.	Name the primary microorganism responsible for fermenting Idli batter.	2	K4	CO4
8.	Name the nutrient content in fermented Soybean meal?	2	K4	CO4
9.	Give an example of a fermented sausage?	2	K5	CO5
10.	What are “shelf-stable meat” products?	2	K5	CO5

**PART – B**

(5 x 13 = 65 Marks)

Q.No.	Questions	Marks	KL	CO
11. a)	Describe in detail the impact of fermented foods on the gut microbiota and effects on gastrointestinal health and disease.	7+6	K1	CO1

(OR)

- b) What are the different types of biotransformation of raw materials during fermentation? And define its purpose with applications. 8+5 K1 CO2
12. a) Discuss in detail about the microbial metabolism in fermentation process highlighting their technological implications. 8+5 K2 CO2

(OR)

- b) Describe in detail the characteristics and different types of starter cultures with examples. 6+7 K2 CO2
13. a) Describe in detail the principle and classification of pickling. 8+5 K3 CO3

(OR)

- b) Explain the process involved in making of grape wine. 13 K3 CO3
14. a) Describe in detail the process involved in fermentation of legumes and its impact on nutritional constituents and nutrient bioavailability. 6+7 K4 CO4

(OR)

- b) What are all the steps involved in manufacturing Natto and Tempeh? 7+6 K4 CO4
15. a) Write a detailed note on functional fermented meat products with probiotics. 13 K5 CO5

(OR)

- b) Write a detailed note on defects and spoilage of fermented meat and meat products. 13 K5 CO5

### PART – C

(1 x 15 = 15 Marks)

- | Q.No.  | Questions   | Marks | KL | CO  |
|--------|---|-------|----|-----|
| 16. a) | Comment on the “Microbial Magics” - the future trends from a new perspective of country health and economy. | 15    | K2 | CO2 |
| (OR)   |   |       |    |     |
| b)     | Discuss the challenges, sources, and health benefits of Indian traditional fermented foods.                 | 15    | K1 | CO1 |