



B.TECH DEGREE EXAMINATIONS: MAY 2018

(Regulation 2015)

Sixth Semester

BIOTECHNOLOGY

U15BTE203: Biotechnology of Value Added Foods

COURSE OUTCOMES

- CO1:** Use the basic and applied knowledge gained through other courses in biotechnology to relate to nutraceuticals and value addition of foods.
- CO2:** Understand various methods of value addition of foods.
- CO3:** Perceive the expected benefits of value addition.
- CO4:** Learn to use genetic engineering to modify and manipulate biological processes for value addition of foods.
- CO5:** Understand the impact of value addition of foods.
- CO6:** Understand the importance of economy and trade due to value addition.

Time: Three Hours

Maximum Marks: 100

Answer all the Questions:-

PART A (10 x 1 = 10 Marks)

1. *Matching type item with multiple choice code*

CO1 [K₃]

| List I | List II |
|----------------|---|
| A. Butter Milk | i. Milk fermented by <i>Streptococcus</i> sp and <i>Lactobacillus</i> Sp |
| B. Whey | ii. Produced by coagulating milk, separating from whey and letting it ripen |
| C. Cheese | iii. the liquid drained from curds and used for further processing or as a livestock feed |
| D. Yogurt | iv. the liquid left over after producing butter from cream, often dried as livestock feed |

| | A | B | C | D |
|----|-----|----|-----|----|
| a) | ii | i | iii | iv |
| b) | iii | iv | ii | i |
| c) | ii | iv | iii | i |
| d) | iii | i | ii | iv |

2. Industrial microbiologists use "tricks" to increase the amount of chosen end product; this may include CO1 [K₃]

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|---|--|
| a) Manipulating the growth environment. | b) Using small scale containers to concentrate production. |
| c) Selecting microbial strains that lack a feedback system. | d) A and C. |

3. *Multiple selection item with multiple choice code* CO3 [K₄]

Consider the following statements connected with food fermentations include

- 1) Leavening bread.
- 2) Pickling.
- 3) dry fish.
- 4) crude extraction

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|-------------|----------|
| a) 1 & 3 | b) 3, 4 |
| c) 2, 3 & 4 | d) 1, 2, |

4. Which Biomolecules simply refers as "Staff of life" in the given.... CO2 [K₃]

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|------------|-----------------|
| a) Protein | b) Carbohydrate |
| c) Lipids | d) Vitamins |

5. **Assertion (A):** Farmers don't earn much after adding value to products CO3 [K₃]

Reason (R): It is false that farmers don't earn money after adding value to products. E.g. – Shelf life increase.

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|---|---|
| a) Both A and R are Individually true and R is the correct explanation of A | b) Both A and R are Individually true but R is not the correct explanation of A |
| c) A is true but R is false | d) A is false but R is true |

6. Which type of fermentation is used to produce yogurt? CO3 [K₂]
 a) Mesophilic b) Thermophilic
 c) Therapeutic d) Yeast-lactic fermentations
7. *Sequencing type item* CO4 [K₂]
 Identify and select the correct steps involved in the “How to make a transgenic plant”?
 1. Dip the flowering plant into a large amount of bacteria. 2. Isolate DNA that codes for the protein you want to express. 3. Insert the DNA into a plasmid. 4. Insert the plasmid into bacteria. Grow a large amount of bacteria containing this plasmid.
 a) 2-3-4-1 b) 1-3-2-4
 c) 3-4-2-1 d) 4-1-3-2
8. Regional factors for location planning include all of the following except: CO4 [K₂]
 a) Raw materials b) Markets
 c) Labor considerations d) Attitudes
9. **Assertion (A):** utilizing value-added precepts for business development, producers can identify the desires of consumers and target markets. CO5 [K₄]
Reason (R): Rather than taking the commodity to the market and hoping that consumers will like it and use it.
 a) Both A and R are Individually true and R is the correct explanation of A b) Both A and R are Individually true but R is not the correct explanation of A
 c) A is true but R is false d) A is false but R is true
10. Which of the following is not an economic resource? CO6 [K₂]
 a) Land b) Labour
 c) Capital d) Air

PART B (10 x 2 = 20 Marks)

(Answer not more than 40 words)

11. Indicate the major role of microbes in fermented foods. CO1 [K₃]
12. What are nutraceutical? Give any two examples. CO1 [K₃]
13. Identify the consumers health beneficial role of vitamins in vegetable crops. CO2 [K₂]
14. Predict few minerals available in cereals and pulses. CO2 [K₂]
15. Define Floriculture. CO3 [K₁]

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|--|-----|------|
| 16. Name four Indian states having large number of floriculture trade leaders. | CO3 | [K2] |
| 17. List value added crops and their agriculture products. | CO4 | [K1] |
| 18. How the designer crops developed? | CO4 | [K3] |
| 19. Define National economy. | CO5 | [K1] |
| 20. What is international trade? | CO6 | [K2] |

Answer any FIVE Questions:-

PART C (5 x 14 = 70 Marks)

(Answer not more than 300 words)

Q.No. 21 is Compulsory

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|---|-----|------|
| 21. Explain the major and minor food constituents in natural foods. Justify, how the constituents play an essential role in human nutrition and prevention of diseases? | CO2 | [K4] |
| 22. Explain the microbial fermented foods based on bakery, dairy and mushrooms products available in the Indian market. Give the detailed account on individual products and their beneficial facts. | CO1 | [K2] |
| 23. Summarise the different food products from fish, poultry having high commercial value in the Indian and global market. Schedule the important nutritional facet of the products and their requirements. | CO1 | [K3] |
| 24. Explain on value added transgenic plants and animals. | CO3 | [K2] |
| 25. Explain the improvement of raw materials by conventional methods and how the improvement of raw material facilitated by the application of biotechnology methods? | CO4 | [K2] |
| 26. Outline the importance of value added crops in the farms and the improvement in farm value and economy. | CO5 | [K3] |
| 27. Classify the impact of biotech-products on national economy and international trade. | CO6 | [K4] |
