


**B.TECH DEGREE EXAMINATIONS: MAY 2017**

(Regulation 2014)

Sixth Semester

**BIOTECHNOLOGY**

U14BTT605 : Food Biotechnology

**COURSE OUTCOMES**
**CO1:** Describe about food and nutrients.

**CO2:** Explain the expanding role of functional foods and nutraceuticals in the promotion of human health and nutrients.

**CO3:** Perceive the advantages and disadvantages of probiotics and prebiotics.

**CO4:** Enable students to modify foods using biotechnology.

**CO5:** Learn the strategies to produce specific food ingredients.

**Time: Three Hours**
**Maximum Marks: 100**
**Answer all the Questions:-**
**PART A (10 x 1 = 10 Marks)**

1. Match the List I with List II

CO1 [K<sub>1</sub>]

List I		List II	
A. Antinutrient		i. Kefir	
B. Nutraceutical		ii. Oxalates	
C. Probiotic		iii. Non destructive test	
D.NIIR		iv. Functional foods	

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

2. The deficiency of vitamin D causes -----

CO1 [K<sub>1</sub>]

- |              |             |
|--------------|-------------|
| a) Scurvy    | b) Rickets  |
| c) Beri-beri | d) Diabetes |

3. Select the correct statements CO3 [K1]
1. essential amino acids cannot be made by the body so they must be obtained from diet.
  2. conditionally essential amino acid can be produced in certain conditions.
  3. Nonessential amino acids can be made by the body.
  4. There are ten essential amino acids
- a) 1,3 b) 1,4  
c) 1,2 d) 2,3
4. ----- are organisms such as bacteria or yeast that are believed to improve health CO2 [K2]
- a) Prebiotics b) Bifidogenic  
c) Synbiotics d) Probiotics
5. Assertion (A): Phytochemicals are essentially chemical compounds that can be found in plant foods like fruits, vegetables, beans and whole grains. CO2 [K2]  
Reason (R): These chemical compounds give plant-based foods their distinctive color, smell and taste
- 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. ----- is a natural toxin in potatoes. CO4 [K1]
- a) Detrodotoxin b) Cyanide  
c) Histamine d) Glycoalkaloids
7. Predict the correct sequence: CO4 [K2]
1. altering genetic material
  2. modify specific characteristics
  3. DNA sequences
  4. introduce a new trait
- a) 2-3-4-1 b) 1-3-2-4  
c) 3-4-2-1 d) 4-1-3-2
8. ----- is a disease of the arteries characterized by the deposition of fatty material on the inner walls. CO2 [K3]
- a) osteoporosis b) osteomalacia  
c) artherosclerosis d) Keratomalacia

9. Assertion (A): ISO has a range of standards for quality management systems CO5 [K3]  
Reason (R): The standards provide guidance for organizations who want to ensure that their products and services consistently.
- 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. Foods that have a positive effect on health beyond basic nutrition are ----- CO5 [K4]
- a) Nutritional foods      b) Functional foods  
c) GM Foods      d) Nutraceuticals

**PART B (10 x 2 = 20 Marks)**

**(Answer not more than 40 words)**

11. Define balanced diet. Substantiate your statement with one example. CO1 [K2]
12. Mention any two minerals and their contribution in diet. CO1 [K1]
13. What is meant by functional food? CO2 [K2]
14. Define probiotics with examples. CO2 [K2]
15. Enumerate any two advantages of phytochemicals in foods. CO3 [K2]
16. What are cancer fighting foods? Give Examples. CO2 [K2]
17. Mention the application of genetic modification of meat quality. CO4 [K3]
18. Classify the types of biotechnological approaches to improve shelf life of fruits. CO4 [K1]
19. What is the role of FSSAI in India? CO5 [K3]
20. Mention any two non-destructive methods of testing foods. CO5 [K3]

**Answer any FIVE Questions:-**

**PART C (5 x 14 = 70 Marks)**

**(Answer not more than 300 words)**

**Q.No. 21 is Compulsory**

21. Discuss GM Foods, with pros and cons. CO3 [K3]
22. Elaborate on osteoporosis. Suggest dietary modifications to prevent and manage. CO1 [K3]
23. Compare and contrast Kwashiorkor and Marasmus. Describe how can nutritionally these deficiency diseases be prevented and managed. CO1 [K4]

- |  |     |                   |
|--|-----|-------------------|
| 24. What are probiotics? Discuss the effects of probiotics on health.  | CO3 | [K <sub>5</sub> ] |
| 25. Enunciate the role of nutraceuticals and their applications.   | CO3 | [K3]              |
| 26. Elaborate on bacterial food additives and dietary supplements.   | CO5 | [K4]              |
| 27. Formulate a HACCP plan of action for implementing food and hygiene regulations in fruit processing industry. | CO5 | [K6]              |

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