



B.TECH DEGREE EXAMINATIONS: NOV/DEC 2022

(Regulation 2018)

Fifth Semester

BIOTECHNOLOGY

U18BTE0002: Food Process Engineering

COURSE OUTCOMES

- CO1:** Apply and analyze the pre-cleaning techniques in food processing
CO2: Apply different types of high temperature processing operations
CO3: Illustrate different drying and dehydration techniques
CO4: Categorize several low temperature processing and preservation techniques
CO5: Classify various post -processing operations
CO6: Apply and analyze various packaging operations

Time: Three Hours

Maximum Marks: 100

Answer all the Questions:-

PART A (10 x 2 = 20 Marks)

(Answer not more than 40 words)

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|--|-----|-------------------|
| 1. Sketch the diagram of color separator | CO1 | [K ₂] |
| 2. Highlight the importance of cleaning and grading process in food processing | CO1 | [K ₂] |
| 3. Enlist the enzymes that cause a loss of eating and nutritional qualities in fruits and vegetables | CO2 | [K ₂] |
| 4. What are the factors that affect the sterilization process? | CO2 | [K ₂] |
| 5. Write any four uses of spray drying process | CO3 | [K ₁] |
| 6. Why is dehydration used for food preservation? | CO3 | [K ₂] |
| 7. Summarize the potential benefits of controlled atmosphere storage. | CO4 | [K ₂] |
| 8. Distinguish the passive and active modification of gases in MAP | CO4 | [K ₄] |
| 9. What is the principle of enrobing? | CO5 | [K ₂] |
| 10. List the advantages of modified atmosphere packaging | CO6 | [K ₁] |

Answer any FIVE Questions:-

PART B (5 x 16 = 80 Marks)

(Answer not more than 400 words)

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|---|----|-----|-------------------|
| 11. a) Explain the working mechanism of magnetic separator and air screen cleaner with illustrations. | 10 | CO1 | [K ₂] |
| b) Discuss the cleaning, sorting and grading of unit operations for subsequent food processing. | 6 | CO1 | [K ₂] |

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|-----|----|--|----|-----|-------------------|
| 12. | a) | Assume that you are working in a food industry and involved in the processing of removal of surface layer from raw vegetables and fruits to improve the appearance of a final product. Which method can be adopted? Explain the method with neat sketch. | 16 | CO1 | [K ₄] |
| 13. | a) | The process that softens vegetable tissues to facilitate filling into containers and removes air from intercellular spaces and increases the density of food. Identify and sketch the process in detail. | 16 | CO2 | [K ₃] |
| 14. | a) | Discuss the working operation, advantages and disadvantages of drum dryer with a neat sketch | 8 | CO3 | [K ₂] |
| | b) | “Drying process is used to dry extremely heat-sensitive materials”. Identify and explain the process with an illustration. | 8 | CO3 | [K ₃] |
| 15. | a) | Write a detailed note on controlled and modified atmosphere storage system for fruits and vegetables with neat diagram. | 16 | CO4 | [K ₂] |
| 16. | a) | Why is coating done? List the materials that are used to enrobe foods. | 4 | CO5 | [K ₂] |
| | b) | Explain the beneficial and detrimental effects of MAP. | 12 | CO6 | [K ₂] |
