



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

(Regulation 2015)

Fourth Semester

**BIOTECHNOLOGY**

U15BTT403: Food Process Engineering

**COURSE OUTCOMES**

- CO1: Explain the scope of food processing  
 CO2: Discuss various pre-cleaning techniques in food processing  
 CO3: Describe different types of high temperature processing operations  
 CO4: Explain different drying and dehydration techniques  
 CO5: Discuss low temperature processing and preservation  
 CO6: Describe various post processing operations.

**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 [K<sub>2</sub>]

<b>List I (Pre Processing Techniques)</b>	<b>List II (Principle)</b>
A. Cleaning	i. Moisture equalization
B. Grading	ii. Removal of moisture
C. Drying	iii. Removal of foreign and undesirable materials
D. Tempering	iv. Removal of larger particles in the initial process

- |    | 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. Choose the most effective evaporator used in food processing industry

CO2 [K<sub>2</sub>]

- |                |                   |
|----------------|-------------------|
| a) Plate       | b) Falling film   |
| c) Rising film | d) Shell and tube |



9. Assertion (A): For bread making a hard wheat flour containing a high level of protein is required CO3 [K<sub>4</sub>]  
Reason (R): Low gluten level is desirable for bread making
- 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. The freezing mixture used in ice cream machine consists of ice and ----- CO5 [K<sub>2</sub>]  
a) CaCl<sub>2</sub>      b) KNO<sub>3</sub>  
c) NaCl      d) Both a and b

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

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

11. Write the working principle of indented cylinder separator. CO1 [K<sub>1</sub>]  
12. Justify the difference between grading and sorting with suitable examples CO1 [K<sub>4</sub>]  
13. Illustrate pasteurization of milk with a flow chart. CO2 [K<sub>2</sub>]  
14. How is the twins cerew extruder used food processing industry. CO2 [K<sub>2</sub>]  
15. Write the theory of frying foods. CO3 [K<sub>1</sub>]  
16. Write the principle of freeze drying. CO3 [K<sub>2</sub>]  
17. Differentiate between controlled and modified atmospheric storage with specific examples. CO4 [K<sub>4</sub>]  
18. What are the different types of freezing method involved in food industry? CO4 [K<sub>2</sub>]  
19. What is CAP, and mention any two examples. CO5 [K<sub>1</sub>]  
20. Why hard coating is important in Food Processing Industry? CO6 [K<sub>1</sub>]

**Answer any FIVE Questions:-**

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

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

**Q.No. 21 is Compulsory**

21. Explain the different pre processing techniques and advantages of peeling and its types with suitable examples. CO1 [K<sub>2</sub>]  
22. Discuss the theory of blanching and its types with a neat diagram. CO2 [K<sub>2</sub>]

23. Explain The various unit operation involved for high temperature processing techniques used in food processing Industry with an example. CO2 [K<sub>2</sub>]
24. Discuss the different methods for determination of moisture content present in the food. CO3 [K<sub>1</sub>]
25. Illustrate the theory of baking and the types of equipment with neat diagram. CO4 [K<sub>2</sub>]
26. Explain the principle and working of the equipments used for freezing foods with a example. CO5 [K<sub>2</sub>]
27. Explain the different types of enrobers used in food industry and give a detail account of it. CO6 [K<sub>2</sub>]

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