

**THE KAVERY ENGINEERING COLLEGE**  
(An Autonomous Institution)

B.E/ B.TECH DEGREE END SEMESTER THEORY EXAMINATIONS, NOV /DEC 2024

*Fifth Semester*

*Agricultural Engineering*

AI3002 - Food and Dairy Engineering

*Regulations - 2021*

*Duration : 3 Hrs*

*Maximum : 100 Marks*

**PART - A (ANSWER ALL QUESTIONS) (Marks 10\*2=20)**

| <i>Q.No</i> | <i>Questions</i>                               | <i>BLT</i> | <i>CO</i> | <i>Marks</i> |
|-------------|------------------------------------------------|------------|-----------|--------------|
| 1.          | Define rheological properties.                 | RE         | 1         | 2            |
| 2.          | List thermal processing types.                 | RE         | 1         | 2            |
| 3.          | Define food spoilage.                          | RE         | 2         | 2            |
| 4.          | List dryer types.                              | RE         | 2         | 2            |
| 5.          | Define pasteurization.                         | RE         | 3         | 2            |
| 6.          | Find milk testing types.                       | RE         | 3         | 2            |
| 7.          | What is homogenization?                        | RE         | 4         | 2            |
| 8.          | List butter churn types.                       | RE         | 4         | 2            |
| 9.          | Name two benefits of high-pressure processing. | RE         | 5         | 2            |
| 10.         | Explain the concept of microencapsulation.     | UN         | 5         | 2            |

**PART - B (ANSWER ALL QUESTIONS) (Marks 5\*13 = 65)**

| <i>Q.No</i> | <i>Questions</i>                                                 | <i>BLT</i> | <i>CO</i> | <i>Marks</i> |
|-------------|------------------------------------------------------------------|------------|-----------|--------------|
| 11.         | a    Compare cooking, blanching, and pasteurization.             | AN         | 1         | 13           |
|             | Or                                                               |            |           |              |
|             | b    Analyze temperature effects on microbial destruction.       | AN         | 1         | 13           |
| 12.         | a    Infer the effects of drying on food texture and structure.  | UN         | 2         | 13           |
|             | Or                                                               |            |           |              |
|             | b    Explain the principles of dehydration and its applications. | UN         | 2         | 13           |
| 13.         | a    Analyze temperature effects on milk proteins.               | AN         | 3         | 13           |
|             | Or                                                               |            |           |              |
|             | b    Compare LTLT/HTST pasteurization.                           | AN         | 3         | 13           |

|     |   |                                                                     |    |   |    |
|-----|---|---------------------------------------------------------------------|----|---|----|
| 14. | a | Summarize the importance of dairy equipment in milk process.        | UN | 4 | 13 |
| Or  |   |                                                                     |    |   |    |
|     | b | Explain the principles of cheese production and its applications.   | UN | 4 | 13 |
| 15. | a | Explain the principles of high-pressure processing and its effects. | UN | 5 | 13 |
| Or  |   |                                                                     |    |   |    |
|     | b | Compare and contrast different non-thermal processing methods.      | UN | 5 | 13 |

*PART – C (Marks 1\*15 = 15)*

| <i>Q.No</i> |   | <i>Questions</i>                                                                                                                                                                                                                                                       | <i>BLT</i> | <i>CO</i> | <i>Marks</i> |
|-------------|---|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|-----------|--------------|
| 16.         | a | Explain a dehydration system for producing dried fruits considering the following factors:<br>i. Type of fruit<br>ii. Initial moisture content<br>iii. Desired final moisture content<br>iv. Drying method (e.g., Spray drying, Freeze drying)<br>v. Energy efficiency | EV         | 1         | 15           |
| Or          |   |                                                                                                                                                                                                                                                                        |            |           |              |
|             | b | Compare the production processes and quality characteristics of the followings.<br>i. Cheese (e.g., Cheddar, Mozzarella)<br>ii. Yogurt (e.g., Greek yogurt, Frozen yogurt)<br>iii. Butter                                                                              | EV         | 3         | 15           |