

U.S.N.								
--------	--	--	--	--	--	--	--	--

B.M.S. College of Engineering, Bengaluru-560019

Autonomous Institute Affiliated to VTU

September / October 2023 Supplementary Examinations

Programme: B.E

Branch: Chemical Engineering

Course Code: 19CH4DELA2

Course: Food Engineering

Semester: IV

Duration: 3 hrs.

Max Marks: 100

Date: 12.09.2023

Instructions: 1. Answer any FIVE full questions, choosing one full question from each unit.
2. Missing data, if any, may be suitably assumed.

UNIT - I

- | | | |
|---|--|----|
| 1 | a) Discuss the general aspects of food industry in detail. | 10 |
| | b) Explain water activity and sorption behavior in foods. | 10 |

UNIT - II

- | | | |
|---|--|----|
| 2 | a) Describe the food deterioration. Explain the cause of food deterioration and their effects on food quality. | 10 |
| | b) Explain i) HACCP ii) FSSAI | 10 |

UNIT - III

- | | | |
|---|---|----|
| 3 | a) Explain the processing of raw milk with a neat flow sheet. | 10 |
| | b) Explain the continuous High Temperature Short-Time (HTST) pasteurization system with all its components. | 10 |

OR

- | | | |
|---|---|----|
| 4 | a) With a neat sketch, explain Ohmic heating. | 10 |
| | b) A spherical food product is being frozen in an air-blast freezer. The initial product temperature is 10°C and the cold air -40°C . The product has a 7 cm diameter with density of 1000 kg/m^3 , the initial freezing temperature is -1.25°C , the thermal conductivity of the frozen product is 1.2 W/m K , and the latent heat of fusion is 250 kJ/kg . Compute the freezing time. | 10 |

UNIT - IV

- | | | |
|---|---|----|
| 5 | a) List the preservatives added to the food and explain their role. | 10 |
| | b) What are food additives? Explain the need for food additives. | 06 |
| | c) What is the role of chelating and leavening agents? | 04 |

UNIT - V

- | | | |
|---|--|----|
| 6 | a) Explain construction and working of twin-screw extruders. | 10 |
| | b) Discuss the functions of food packaging. Classify food packaging. | 10 |

OR

- | | | |
|---|--|----|
| 7 | a) Discuss the mass transfer in the packaging materials. | 10 |
| | b) Explain the laws related to labeling of the following foods.
i) Meat food products order 1973
ii) Genetically modified food | 10 |

Important Note: Completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
Revealing of identification, appeal to evaluator will be treated as malpractice.
