



KERALA AGRICULTURAL UNIVERSITY
B. Tech.(Food Technology) 2025 & Previous Admission
II Semester Final Examination – July 2026

FPE 1202

Unit Operations in Food Processing (2+1)

Marks: 50
Time: 2 hours

I Fill in the blanks

(10x1=10)

1. In evaporation, the removal of solvent is typically done by _____.
2. _____ plot is used to determine boiling point elevation in evaporative systems.
3. _____ equation is used to calculate freezing time in food materials.
4. Natural circulation evaporators operate without using _____.
5. In pasteurization, microorganisms are destroyed at _____ temperatures.

State True or False

6. Fractional distillation separates components based on solubility.
7. Freeze drying involves sublimation of ice to vapor.
8. Emulsification is the process of mixing two immiscible liquids (such as oil and water) to form a stable emulsion with the help of emulsifiers.
9. Blanching is a mild heat treatment applied to fruits or vegetables for precooking.
10. Fouling refers to the accumulation of desired material on heat exchanger surfaces.

II Write short notes on ANY FIVE of the following

(5x2=10)

1. Briefly explain heat and mass transfer in frying.
2. What are the principles of leaching?
3. What is a vapour recompression system?
4. What is freeze concentration and how is it performed?
5. How do batch and continuous distillation processes differ?
6. Describe the common methods used in puffing.
7. What are the applications of crystallization in the food industry?

III Answer ANY FIVE of the following

(5x4=20)

1. Explain the design and working of multiple effect evaporators
2. What are the major factors influencing freezing time in food processing?
3. Describe the principle and equipment used in freeze drying
4. Explain steam distillation with applications.
5. Discuss the design and working of plate heat exchanger in pasteurization.
6. Explain the kinetics of crystallization and its role in food processing.
7. Describe the types and functions of frying equipment.

IV Write an essay on ANY ONE of the following

(1x10=10)

1. Elaborate on the process, design and operation of vacuum evaporators.
2. Discuss UHT sterilization and the equipment used in in-package sterilization.
