



KERALA AGRICULTURAL UNIVERSITY
B.Tech.(Food Technology) 2024 Admission
IV Semester Final Examination – July 2026

FPE 2207

Fundamentals of Food Engineering (2+1)

Marks: 50
Time: 2 hours

I Fill in the blanks

(10x1=10)

1. Drying involves removal of from a material.
2. Moisture above EMC is called moisture.

Match the following

3. Rittinger's law	i. Impact
4. Kick's law	ii. Shearing
5. Hammer mill	iii. Fine grinding
6. Attrition mill	iv. Coarse crushing

State True or False

7. Falling rate period is controlled by internal moisture movement.
8. Dryer efficiency can exceed 100%.

Define the following

9. Work Index
10. Sieve Analysis

II Write short notes on ANY FIVE of the following

(5x2=10)

1. Explain factors affecting dryer performance.
2. Compare spray drying and drum drying.
3. Explain principles and mechanisms of size reduction.
4. Explain working of fluid jet pulverizer.
5. Describe filtration equipment with applications.
6. Explain ultrafiltration (UF) and its applications in food processing.
7. Write short notes on gel filtration and ion exchange.

III Answer ANY FIVE of the following

(5x4=20)

1. Describe drying rate curves and explain different drying periods.
2. Explain size reduction in food processing, its benefits and classification.
3. Explain Rittinger's, Kick's and Bond's laws of comminution with applications.
4. Describe different types of mixing equipment used for liquids, pastes, and dry solids.
5. Explain the theory of filtration and derive the equation for constant pressure filtration.
6. Explain membrane separation and its general considerations.
7. Explain applications of membrane technology in food processing.

IV Write an essay on ANY ONE of the following

(1x10=10)

1. Describe different types of crushers used in food processing. Also explain different types of mills used for size reduction in brief.
2. Explain the theory of solids mixing, mechanisms involved, mixing indices, and rate of mixing. Also explain the theory of liquid mixing and derive the equation for power requirement in liquid mixing.
