



**KERALA AGRICULTURAL UNIVERSITY**  
**B. Tech. (Agrl. Engg.) 2021 Admission**  
**III Semester Final Examination – February 2023**

Fape.2102

Post Harvest Engineering of Cereals, Pulses and Oil Seeds (2+1)

Marks: 50  
Time: 2 hours

**I Fill in the blanks (10x1=10)**

1. Larger crops seeds like peas & beans are separated by .....
  2. The device which is simple, inexpensive & quite useful for seed cleaning purposes .....
  3. Henderson equation for determination of EMC is based on .....
  4. Thermal conductivity is determined by the formula .....
  5. Removal of moisture from a grain to a pre- determined level is called .....
- State True or False**
6. The moisture content of agricultural products at which constant rate drying causes & falling rate starts called Critical moisture content.
  7. The transfer of moisture from interior of grain faster towards surface during drying due to conduction.
  8. The rankine's formula is used for determination of pressure induced by granular materials against retaining wall in deep bin.
  9. Porosity percent in wheat is 50-55.
  10. The clearance between rubber roll sheller is equal to the mean diameter of the paddy.

**II Write short notes on ANY FIVE of the following (5x2=10)**

1. Differentiate grading and sorting.
2. What is the usefulness of EMC in drying & storage of agricultural produces?
3. Calculate the settling velocity of dust particles of (a)  $60\mu\text{m}$  & (b)  $\mu\text{m}$  diameter in air at  $21^\circ\text{C}$  &  $100\text{kPa}$  pressure. Assume that the particles are spherical & of density  $1280\text{kg/m}^3$ , & that the viscosity of air =  $1.8 \times 10^{-5} \text{ N.s/m}^2$  & density of air =  $1.2\text{kg/m}^3$ .
4. Define hysteresis effect.
5. Define extrusion cooking.
6. List different separators.
7. Write down the factors affecting the mixing process

**III Answer ANY FIVE of the following (5x4=20)**

1. Describe the different unit operations involved in the milling of pulses.
2. What is terminal velocity? How terminal velocity is correlated with drag coefficient?
3. What are the problems faced by pulse milling industries?
4. What are the advantages & disadvantages of paddy parboiling?
5. Write short note on modern equipments for dehusking of paddy.
6. Briefly explain different size reduction machinery.
7. Briefly explain different oil extractors.

**IV Write an essay on ANY ONE of the following (1x10=10)**

1. Explain different size reduction principles. Explain the working principle of attrition mill and hammer mill with neat sketches.
2. Explain different types of grain driers. Explain the working of LSU drier with neat sketch.

\*\*\*\*\*