



KERALA AGRICULTURAL UNIVERSITY
B.Tech.(Agrl. Engg.) 2022 & Previous Admissions
III Semester Final Examination - February 2024

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. The open area in a square mesh wire cloth with the size of opening 0.115 inch and the wire diameter 0.01 inch will be
2. Belt and roller sorter is used to sort the commodities as per differences in
3. Rettinger assumed that the work required in crushing is proportional to
4. The oil content (w/w basis) of raw rice bran is approximately%
5. In the cone polisher, the clearance between the rubber brake and crib is mm.
6. The tempering degerming method of milling is related to
7. The differential speed of break rolls of wheat mill is
8. n-hexane has a boiling point of°C.
9. The humidity ratio on a psychrometric chart has the unit of
10. In convection drying of agricultural materials, among the different parameters as the temperature, velocity and relative humidity of air, the rate of drying is mostly controlled by the

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

1. What are the different factors those affect the equilibrium moisture content of the grain during drying process?
2. State the principle of separation in
 - (a) spiral separator and
 - (b) inclined draper
3. Why the oil seed is pre-conditioned before oil extraction or milling?
4. If 4 kg of dry air with humidity ratio of 0.002 kg/kg of dry air is mixed with 1 kg of dry air with humidity ratio of 0.02 kg/kg of dry air, what will be the final humidity ratio of the mixture?
5. Explain the different dryer performance factors.
6. State the principle of extrusion cooking and different parts of a hot extruder.
7. Explain the different types of grain unloading devices in a belt conveyor.

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

1. What are the advantages of parboiling of paddy? Explain the CFTRI method of parboiling.
2. Explain the different size reduction laws.
3. In a bin dryer, at any particular time during the drying process, it was observed that the drying front had already reached the top of the bin. If the moisture content of the crop in a particular layer reduces from 80% dry basis to 30% dry basis in 300 minutes, and the equilibrium moisture content of the crop with the drying air has been estimated as 12% dry basis, then what is the value of the drying rate constant 'k'?
4. Explain the working principle of a LSU dryer with a labelled diagram.
5. Explain the different mixing indices for mixing of solids.
6. Write a note on water activity, including its importance during the storage of foods and the factors affecting water activity.
7. Explain the tempering-degerming method of corn milling.

IV

Write an essay on ANY ONE of the following

(1x10=10)

1. What are the different unit operations in modern rice milling? State the each unit operation with the help of a flow chart, its objective and the type of equipment used for these operations.
2. Explain the different methods for expression of oil from oil bearing materials. Explain the relative advantages and disadvantages of these methods. Also explain the working principle of a screw press with a description of its different parts.
