KERALA AGRICULTURAL UNIVERSITY
B.Tech.(Food Technology) 2024 Admission
II Semester Final Examination – August 2025

FPE 1201 **Post -Harvest Engineering (2+1)** **Marks: 50**
Time: 2 hours

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

1. Water activity (**aw**) and …… are closely related thermodynamic concepts
2. Specific gravity of a solid is the ration of ……
3. kJ/ kg °C is the unit of ……
4. Rheological properties deal with …… and …….. of materials.
5. …….. and …… are common conveying equipment for grain handling.

State True or False

6. Transportation of grains, the belt speed should not increase beyond 3.5 m/s.
7. Gyratory screen are the type of rotary screens.
8. A screw conveyor is also known as an auger conveyor.
9. Vacuum drying is employed to maximize thermal degradation.
10. Magnetic separators perform on the basis of surface texture and stickiness of grain.

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

1. Define the water activity.
2. What is post harvest loss?
3. Discuss on the role of idlers in belt conveyor systems.
4. What is terminal velocity?
5. How to calculate the capacity of bucket elevator?
6. Explain the working principle of a spiral separator.
7. What are the main parts of a screw conveyor?

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

1. A fat globule of 4μm in diameter moves upwards at a velocity of 1.06 mm/h, the velocity of fat globule which is twice the size will be ……?
2. A leather belt 100 mm wide and 10 mm thick with a safe permissible stress of 1.5 MPa is used for transmitting a maximum power of 15kW. If the density of the belt material is 1.0 g cm^{-3}, the velocity of the belt for maximum power transmission will be …….?
3. What are the difference between magnetic separators and electrostatic separators?
4. Differentiate between cleaning, peeling, sorting and grading of fruits.
5. Write a short note on rotary screens.
6. Explain the working principle of rubber roll sheller.
7. Explain dry milling of pulse.

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

1. Discuss in detail about milling of wheat. Further discuss on the components of a wheat mill.
2. Explain the working principle of a bucket elevator and discuss on the different section of an elevator. The diameter of discharge wheel of a bucket elevator is 150 mm and the projection of bucket is 114 mm. For optimum centrifugal discharge of material, the rpm of operation of the elevator will be ……?

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