



KERALA AGRICULTURAL UNIVERSITY
B. Tech. (Agrl. Engg.) 2023 & Previous Admissions
VI Semester Final Examination – June 2026

Fpme 3213

Farm Machinery and Equipment-II (2+1)

Marks: 50
Time: 2 hours

- I Fill in the blanks (10x1=10)**
- 1 The optimum value of reel index should be in the range of to
 - 2 The type of test conducted for a prototype model before it is ready for commercial production istest.
 - 3 The recommended range of grain moisture content for threshing is fromto%.
 - 4 The field capacity of straw combine isha/h.
 - 5 BMR stands for
- Define the following**
- 6 Uniformity coefficient
 - 7 Anthropometry
 - 8 Shoe loss
 - 9 Weeding efficiency
 - 10 Alignment of mower
- II Write short notes on ANY FIVE of the following (5x2=10)**
- 1 Purpose of testing of agricultural machinery.
 - 2 Flail mower.
 - 3 Tailing return system of combine harvester.
 - 4 Power knapsack sprayers
 - 5 Single row spinner digger.
 - 6 How will you measure the energy expenditure under direct calorimetry method?
 - 7 Types of threshing systems based on crop flow
- III Answer ANY FIVE of the following. (5x4=20)**
- 1 Explain the forces acting on a cutter bar of a mower with neat diagram.
 - 2 With a neat sketch, explain the working of a cono weeder.
 - 3 Explain the working of a knap sack sprayer with a neat sketch.
 - 4 Discuss the different types of mowers based on the cutting unit.
 - 5 What are the different constraints of mechanical harvesting?
 - 6 If a chaff cutter having 2 knives has a capacity of 500kg/h while cutting aa fodder at a speed of 50 rpm then determine the length of cut of the fodder. The throat size of the chaff cutter is 24 ×8cm. Consider dry density of the fodder as 400kg/m³
 - 7 What are the objectives of agricultural machinery testing?

IV Write an essay on ANY ONE of the following

(1x10=10)

- 1 (A) A combine was tested for harvesting jowar and following observations were recorded

Total area harvested = 78 sq. m.	Total time required = 65 sec	Total material left over the rack = 18 kg.
Free seed over the rack = 150 gms.	Unthreshed seed over the rack = 120 gms.	Free seed over the shoe = 530 gms.
Unthreshed seed over shoe = 150 gms.	Total material left over shoes = 8 kg.	Net grain collected in the tank = 34 kg.

Calculate:

1. Seed yield and total loss in kg/hectare.
2. Cylinder loss, rack loss, shoe loss and total grain loss as percent of total yield.
3. Total feed rate in kg/hour.
4. Rates of straw and chaff over the rack and over the shoe in kg/hr.
5. Percentage of straw and chaff retained by rack.

(B) Write down the functions of reel. Explain its types, and adjustments.

2. A) Explain the working of power operated boom sprayer with neat line diagram.

B) Determine the rate of flow of herbicide solution to the sprayer boom when it is being applied in a crop at the rate of 350 l/ha. The effective width of the sprayer is 12.5m and the tractor is operating at a speed of 5.0 kmph. Also calculate the flow rate from the spray nozzle when the spacing between the nozzles is 50cm.
