



KERALA AGRICULTURAL UNIVERSITY
B.Tech. (Agrl. Engg.) 2018 Admission

V Semester Final Examination-February-2021

Fpme 3110

Farm Machinery and Equipment - I (2+1)

Marks: 50
Time: 2 hours

- I Fill in the blanks (10x1= 10)**
- The size of the MB plough is expressed by _____.
 - The method of ploughing in which plough works round a strip of unploughed land is _____.
 - The loss of value of a machine with passage of time know as _____.
- Choose the correct answer.**
- Direct or variable cost depends upon:
 - Amount of use of a machine
 - Output of a machine
 - Both (a) and (b)
 - None of the above
 - Dead furrow is made by
 - One way MB plough
 - Two way MB plough
 - Disc plough
 - Rotary plough
 - Which of the following parameters influences the seed rate in seed drills
 - Feed shaft speed
 - Length of groove exposed
 - Both
 - None
- 7. Match the Following**
- | | |
|------------------------------|---------------------------------|
| a) Auger feed mechanism | 1. Stony or root infested field |
| b) Shovel type furrow opener | 2. Fertilizer drill |
| c) Scouring | 3. Uniformity of tillage |
| d) Rotary tiller | 4. Movement of soil |
- State True or False**
- Chisel and subsoiler plough are primary tillage implements.
 - Vertical suction of a plough influences pulverization.
- Define**
- Disc angle.
- II Write Short notes on any FIVE of the following (5x2=10)**
- What are advantages and disadvantages of the different farm power sources?
 - Explain primary and secondary tillage? List out the implements used for it.
 - What are the various types of share and mould board used in MB plough? Explain in brief with neat sketch.
 - What are the various components of a seed-cum-fertilizer drill?
 - Compare the disc plough and mould board plough.
 - Explain disc geometry of disc plough.
 - Explain Horizontal Suction and Vertical Suction and line of pull of MB plough.
- III Answer any FIVE of the following. (5x4=20)**
- Explain straight line, constant percentage and estimated value methods of determining depreciation cost.
 - What do you mean by breakeven point and how it is determined? Explain in detail.
 - What are the types of harrow? Explain briefly with a neat sketch.

4. How many acres can be covered in a day of 8 hours by an animal drawn spike tooth harrow having a width of 1250 mm? The speed of operation is 2.75 km/h. If each spike of the harrow is giving 0.85 kg resistance and when there are 43 spikes. What would be the horse power required to pull the harrow?
5. What are the various components of a seed-cum – fertilizer drill? Explain the working of various components.
6. What are the different types of furrow openers used in seed drill?
7. Explain the working principle and operation of self-propelled riding type four wheel rice transplanter.

IV

Write an essay on any ONE of the following

(1x10=10)

1. The initial cost of 35 hp MF tractor owned by a farmer is Rs.300000/-. The tractor is expected to work for 10 years. In a year the farmers used the tractor for 1000hours. The farmer also owns an 11 tyned cultivator. The tynes are spaced at 20cm apart. The cost of the cultivator is rs.12000. The tractor consumes 3 liters of diesel while ploughing with the cultivator. The life of the cultivator is 10 year. The farmer uses the cultivator for 400 hours in a year. The cultivator is operated at a speed of 4km/h. Calculate the cost of ploughing 2ha of land with the cultivator. Assume all other necessary data.
2. What are the functions of a spike tooth harrow? Explain the working of its various components?
