KERALA AGRICULTURAL UNIVERSITY
B.Tech.(Agrl. Engg.) 2020 Admission
V Semester Final Examination- January 2023

Fpme.3110 **Farm Machinery and Equipment - I (2+1)** **Marks: 50**
Time: 2 hours

I **Define the following** **(10x1=10)**

1 Implement
2 Calibration
3 Field efficiency
4 Disc angle
5 Sowing

Fill in the blanks

6 The quality of work in terms of soil aggregates and clod size is measured by .....
7 The size of the seed drill is expressed as number of furrow opener X .....
8 .....is the point at which land side and heal of share joints in the working position of MB plough.
9 The set of disc, which are mounted on common shaft is called .....
10 ..... are normally used for sowing seeds which are larger in size, that can not be sown by common seed drills.

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

1 What is tillage and state its objectives.
2 What are the functions of seed planter? State types of seed metering device in planter.
3 Explain spring tine cultivator in brief.
4 Differentiate Vertical suction and Horizontal suction of MB plough.
5 What are the limitations of agricultural mechanization in Kerala?
6 Describe triangular blade harrow (bakhar) in brief.
7 A indigenous plough 20 cm wide furrow at top and 10 cm depth. Calculate the volume of soil handed in 8 hours if speed of working is 2.5 km/hr.

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

1 Enlist the factors to be considered for selection of farm machinery and explain in brief.
2 Enlist the various items to be considered for estimating cost of operation of farm equipments and describe in brief.
3 What is hardness of a surface? Describe the common methods used for increasing surface hardness of metals.
4 A three bottom 35 cm M.B. plough has a working depth of 12 cm. Draft is 1000 kg, field efficiency is 80% and working speed is 4.0 km/hr. Find
   (a) Unit draft
   (b) Power required
   (c) Actual field capacity
5 Describe forces acting upon a M.B.Plough with neat sketch.
6 Explain disc angle and tilt angle with neat sketches and how it affect the ploughing operation.
7 What are the functions of harrows? Describe in brief tandem disc harrow and offset disc harrow.

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

1 State the different types of seed metering mechanisms used for seed drills and discuss the principle of operation of any two with neat sketches.

2 Discuss the scope of farm mechanization, benefits and suggestions for improving status in India.