

KERALA AGRICULTURAL UNIVERSITY

B.Tech (Agrl.Engg.) 2015 Admission

IV Semester Final Examination-August-2017

Cat. No: Fpme.2208

Marks: 50

Title: Farm Machinery and Equipment-I (2+1)

Time: 2 hours

I Fill up the blanks/Define

(10x1=10)

1. The edge along which the share attached to the mould board is called -----
2. ----- is a combination of rigid or resistant bodies having definite motion and capable of performing useful work.
3. ----- means the movement of soil across a tool surface without sticking, as fast enough to avoid buildups.
4. ----- divides the spray into two equal portions on the basis of number.
5. The machine combining tillage and sowing operations, thereby saving the time and energy is called-----
6. Side Draft
7. Pneumatic atomization
8. Ergonomics
9. Modulus of rigidity
10. Vertical disc plough

II Write short notes/answers to any FIVE of the following

(5x2=10)

1. Differentiate disc angle and tilt angle with neat sketch.
2. Differentiate off-set and tandem disc harrows with neat sketch.
3. Differentiate seeder and planter
4. Determine the power required to pull a four bottom 30 cm plough, working a depth of 15 cm. The tractor is operating at a speed of 6 km h⁻¹. The soil resistance is 0.7 kg cm⁻².
5. List any eight types of seed metering mechanisms.
6. Give the classification of sprayers based on volume of application.
7. Calculate water power which is required to discharge liquid @ 30 lit min⁻¹ at 30 kg cm⁻² pressure.

III Write short answers to any FIVE

(5x4=20)

1. Discuss the forces acting on a mould board plough with neat sketch.
2. A nine tine cultivator having the spacing 8 cm, working depth of 5 cm and speed is 3 km h⁻¹. Turning loss is 10%. Soil resistance is 0.6 kg cm⁻². Width of each furrow is 5 cm. Calculate (a) Time to cover one hectare, (b) Maximum draft and (c) Required power.
3. Explain the components of a knapsack power duster with neat sketch.
4. Briefly explain the working of vertical axis rotary tiller.
5. Explain the working of a 4-row walk behind paddy transplanter.
6. Calculate the time and power required for sowing 4 ha of land by a 5 row seed drill, going 5cm deep. The speed of drill is 3 km h⁻¹ and the pressure exerted by soil on the seed drill is 0.42 kg cm⁻¹. The spacing between the two furrow openers is 20 cm. Loss of turning is 10%. Width of each furrow opener is 5 cm.
7. Sketch and explain the working of a cono weeder for paddy.

IV Write essay on any ONE

(1x10=10)

1. Explain the components of mould board plough with neat sketches.
2. Explain the procedure for calibration of seed cum fertilizer drill.
