

KERALA AGRICULTURAL UNIVERSITY

B.Sc. Hons (Ag) 2011 Admission
IInd Semester Final Examination, August 2012

Cat. No: Engg.1202

Marks: 80

Title: Farm Power and Machinery (1+1)

Time: 3hours

I. Fill up the blanks /Define/ Name of the following (10 x 1=10)

- (1). Define Back furrow?
- (2). Displacement volume of a 2 stroke engine is
- (3). Calorific value of petrol is
- (4). Name the clutch used in Power Tiller?
- (5). Define rolling resistance?
- (6). Define firing interval?
- (7). Define centre of resistance?
- (8). What are the various adjustments of Front Wheel of a tractor?
- (9). Discharge rate of a nozzle is proportional to
- (10). What are the forces acting upon a tillage implement?

II. Write short notes / answers etc. on ANY TEN (10 x 3 = 30)

- (1). What is the difference between trailed, semi-mounted and mounted implements?
- (2). Differentiate between Otto cycle and diesel cycle.
- (3). Describe the combustion process in Diesel engine.
- (4). How does detonation differ from pre-ignition?
- (5). Differentiate between fluted roller type and internal double run type seed metering mechanism.

- (6). What are the main components of an I.C. engine? Compare diesel engine with spark ignition engine.
- (7). Explain different methods of hydraulic control system.
- (8). What are the factors affecting penetration of disc harrow.
- (9). What are the main components of a power tiller? Explain the working of tiller.
- (10). What are the different methods of water cooling? Describe any one of them.
- (11). How splash system of lubrication works in an I.C. engine?
- (12). Differentiate between vertical suction and horizontal suction.

III. Write short essays on ANY SIX of the following

(6 x 5 = 30)

- (1). What do you understand by proper registration and alignment? Explain the working of Self Propelled Harvester.
- (2). How a spring loaded type cultivator differs with rigid tined cultivator in working? Describe with neat sketches.
- (3). Explain the working of two stroke cycle engine with neat sketches.
- (4). What are the performance characteristics of tractor engines? Explain with the help of various curves.
- (5). What are the different methods of ploughing? Describe with neat sketches.
- (6). Explain the process of calibration of seed drill? Describe the working of paddy drum seeder.
- (7). What are the different types of sprayers? Describe the working of each sprayer.
- (8). What is the function of Differential in a tractor? Explain its working with the help of diagram.

IV. Write essay/answers on ANY ONE.

(1 x 10 = 10)

1. Explain different sources of farm power. Discuss the scope of farm mechanization in Kerala.
2. Describe the mechanics of Tractor Chassis. Explain different methods for finding Centre of Gravity of a Tractor. Explain the important test conditions of a Tractor.