

EASTERN UNIVERSITY, SRI LANKA  
FACULTY OF AGRICULTURE  
FIRST YEAR SECOND SEMESTER EXAMINATION IN AGRICULTURE – 2005/2006

AEN 1201 – FARM POWER AND MACHINERY (2:30/30)

**Time: Two hours**

**Answer all questions**

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- Q1. a) List out the important parts of a transmission system of tractor and state the functions of each component.
- b) Discuss the important events occur in a four stroke diesel engine during its operation (to convert the energy in the fuel into useful mechanical energy at the engine power outlet).
- c) Briefly explain the functions of lubrication system.
- Q2. a) Classify the sprayers based on the size of operation and rate of application.
- b) Comment on “Disc plough is preferred than Mould Board Plough under certain conditions”.
- c) (i) Enumerate the factors that should be considered in selecting a water pump for irrigation purposes.
- (ii) Illustrate and briefly discuss the operating principles of a positive displacement double action reciprocating pump.
- Q3. a) Predict the maximum traction thrust of a truck type tractor with two tracks each 360 mm wide by 1680 mm long. The weight of the tractor is 31.75 kN. Assume that the lugs on the track are such that the soil is sheared off in a plane at the ends of the lugs. Soil parameters are  $c = 14 \text{ kPa}$  and  $\theta = 30^\circ$ . ( $\tan 30^\circ = 0.577$ )
- b) Calculate the depreciation of the machinery costing Rs. 20,000.00 having an estimated salvage value of Rs. 2,000.00 and expected life span of 10 years. Depreciation should be determined by the sum of years digit method from the year of buying, as this was bought at the beginning of the year.
- Q4. Short notes on the following:
- a) Power sources used in farm operations;
- b) Methods of determining depreciation;
- c) Secondary tillage implements.