



The Open University of Sri Lanka
 Faculty of Engineering Technology
 Bachelor of Industrial Studies (Agriculture) Program
 Final Examination- 2009/2010
AEI5243 Farm Power and Machinery

Date : 21.03.2010
Time : 0930-1230
Duration : Three (03) hours

SECTION 2: Answer question no 1 and any three others.

1. a) Briefly explain the importance of sprayers in agricultural activities.
 - b) List out three (03) classes/types of pumps use in agricultural operations.
 - c) Lets assume that a sprayer has the capacity of 25 liters (L). You need to apply of the herbicide roundup in 1ha of land and the application rate is 2 L/ha. Assuming that out put of the spray unit is 100 L/ha. Calculate the amount of roundup required per tank.

- 1.a) Clearly differentiate primary tillage and secondary tillage operations.
 - b) Write an essay on the effect of primary and secondary tillage on soil compaction.

3. Write short notes on the following topics.
 - a) Four stroke and two stroke engines
 - b) Solar pond technology
 - c) Travel reduction of four wheel tractor
 - d) Principle of solar chimney
 - e) Pump storage reservoir

4. Sri Lanka is a potential country of generating energy from natural resources. Write an essay on that. Your answer should include available natural resources, potential of using them as an energy source, possible areas and any circumstances for using selected sources.

5. a) Write a small account on improving the productivity of land and labour by farm mechanization in large scale paddy cultivation in Anuradhapura.

- b) Write a summary account on marginal benefits of animal power versus human labour.
6. a) Clearly differentiate internal combustion engines and external combustion engines.
- b) Write down the importance of lubrication system of a tractor engine.
- c) Four stroke engine has 6 (six) cylinder arrangement. To complete the four stroke cycle the engine crankshaft must make two revolutions and one revolution is 360° . Determine the angles between the cylinders.