



Date : 09-09-2015  
Time : 9:30-12:30 hours  
Duration : 03 hours

**SECTION II: 2hours**

Answer **any four (04)** of the questions.

1. (a) Briefly discuss the special features of an Agricultural Tractor. Your discussion should relate to pre-harvest and post-harvest operations (15 marks).  
(b) Briefly discuss following two systems of an engine  
(i) cooling system and (7.5 marks)  
(ii) lubrication system (7.5 marks)
2. a. Differentiate between agricultural production and productivity (6 marks).  
b. What are the factors that influence the land productivity ? (6 marks).  
c. How mechanization can help to improve the land productivity ? (7 marks).  
d. What are the constraints for mechanization in Sri Lanka ? (6 marks).
3. Write short notes on the following (5 marks each).
  - a. Mould board plough
  - b. Disc plough
  - c. Direct and indirect sun driers
  - d. Tractive efficiency
  - e. Ballasting
4. (a) Calibration of a sprayer is crucial for efficient application of agrochemicals at the correct dosage. Critically discuss (15 marks).  
(b) Suppose a knapsack sprayer nozzle deliver 0.25 gal/minute at 25 psi pressure.
  - (i) If a walking speed of a farmer is 250 ft/minute and the spray width is 2 feet, calculate the area that could be covered per minute. (consider 1ac = 43560 sqft). (5 marks)
  - (ii) Calculate the gallons of spray applied per acre. (5 marks)
  - (iii) If the recommended chemical application is 10 oz Roundup per acre what is the amount of chemical needed per gallon of water? (5marks)
5. Write notes on the following in relation to agricultural production. You should indicate the advantages and disadvantages of each method (5 marks each).
  - (a) Animal power
  - (b) Wind power
  - (c) Solar power
  - (d) Hydropower
  - (e) Tidal power
6. Mechanization in rice production is very important to increase the productivity of rice in Sri Lanka. Discuss this with giving examples of mechanization starting from land preparation to polished rice available in the market. You should also mention the advantages and disadvantages of using all types of machineries in the process.