Cat. No: Fpme.2208   Marks: 50

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

I. Fill in the blanks   (10 x 1=10)

1. An implement that is pulled and guided from a single hitch point and is never completely supported by the tractor is known as _____.

2. _____ steel is used for the construction of plough shares,blades,shovels.

3. The actual area covered by the implement,based on its total time consumed and its actual width is known as _____ field capacity.

4. An open trench left in between two adjacent strips of land after finishing the ploughing is called _____ furrow.

5. The mechanical manipulation of soil to provide favorable condition for crop production is known as _____.

State True or False

6. Theoretical field capacity will be less than the actual field capacity.

7. Whenever a plough works round a strip of ploughed land,to provide furrows at all times on the right hand side of the plough,it is said to be Gathering.

8. The true point of hitch of a tractor is known as centre of power .

9. The horizontal component of the pull perpendicular to the direction of motion is known as draft.

10. The disc plough can work well in stony and stumpy soil.

II Answer the following any FIVE   (5 x 2=10)

1. What are the points to be considered for selection of machines for crop production?

2. Calculate the area covered per day of 8 hours by a tractor drawn four botton 30 cm plough if the speed of the ploughing is 5 kmph, the time lost in turning is 5%.

3. Explain about the vertical suction and horizontal suction in a Mould Board plough .

4. Explain about different types of Tractor drawn cultivators.

5. What are the different types of seed metering mechanisms used for seed drills.

6. Write short notes on I) paddy weeder and ii) wheel hoe.

7. Explain the working of a ULV sprayer.

III. Write short notes on ANY FIVE of the following   (5x 4=20)

1. Total draft of four bottom,40 cm MB plough when ploughing 17.5 cm deep at 5.5 kmph speed is 1700 kg. Field efficiency is 75%. Calculate unit draft,actual power required and area covered per hour.

2. Explain how a trailed and mounted implement can be hitched to a tractor and controlled.

3. Briefly discuss about different types of harrows.

4. Calculate the seed rate per ha of a 7x17 cm seed drill, whose main drive wheel is 124 cm diameter and total weight of grain collected in 20 revolutions is 0.423 kg.

5. Describe the components of a manual rice trans planter.

6. Explain the working of potato planter and sugarcane planter.

7. With neat sketch, explain the working principle of a knapsack sprayer.

IV. Write essay on ANY ONE of the following

(1 x 10=10)

1. A farmer purchased a 35 hp diesel tractor for Rs.5,00,000. It's total working life is 12,000 hours and annual use is 1000 hrs. The annual interest is 16%. The tractor is being used with a eleven tyne cultivator costing Rs.25,000/-. The shovel spacing is 22.5 cm. Speed of cultivation is 6 kmph and field efficiency is 70%. Calculate, a) Cost of use of tractor in Rs/hr and b) Cost of cultivation in Rs/ha.

2. What are the types of plant protection equipments? With a neat sketch, explain the working principle of rocker sprayer.