

Semester	: V (New)	Term	: First	Academic Year	: 2022-23
Course No.	: FMPE 358	Title	: Farm Machinery and Equipment-I		
Credits	: 2 (1+1)				
Day & Date	: Tuesday, 11.04.2023	Time	: 14:00 to 16:00 hrs.	Total Marks	: 40
Note : 1. Solve ANY EIGHT questions from SECTION 'A'. 2. All questions from SECTION 'B' are compulsory. 3. All questions carry equal marks. 4. Draw neat diagram wherever necessary.					

SECTION 'A'

- Q.1 a) State the benefits of farm mechanization and limiting factors in farm mechanization.
 b) Enlist the factors to be considered while selection of farm machinery and explain any two of them.

Q.2 Draw a neat labeled diagram of disc plough and explain its different parts.

Q.3 a) Enlist the objectives of tillage.

b) Two bullocks weighing 400 kg each are pulling an implement with a speed of 3 km/h. Find the power developed by the bullocks.

Q.4 Enlist the items to be considered for estimation of fixed and operating cost of equipment. Explain the procedure for estimation of fixed cost.

Q.5 How much area can be covered by a spike tooth harrow of 1.5 m width in a day of 8 hours with bullock pair? If each spike of the harrow is giving 1 kg resistance, when there are 50 spikes. What power would be necessary for the bullocks to pull the harrow, if the travel speed is 4 km/h?

Q.6 What is seed drill? Explain the procedure of seed-cum-fertilizer drill calibration.

Q.7 What are the different types of furrow openers used on seed sowing equipment? Explain any three with neat diagrams.

Q.8 A seed plate of planter turns one revolution for two revolutions of ground wheel. The ground wheel has an effective circumference of 2 m and the seed plate has 16 cells. What will be the seed to seed distance in the row?

Q.9 What are the different types of forces that act on the tillage tool? Write the expression for draft, vertical force and side force acting on tillage tool.

Q.10 What is mole drainage? Explain about Tractor mounted mole drainer.

Q.11 Fill in the blanks:

1) _____ is the angle at which the plane of cutting edge of disc is inclined to the direction of travel.

2) If the speed of travel of an animal drawn seed drill is doubled, then the seed rate will

3) _____ is the force between soil and metal.

4) _____ is a miniature m.b. plough.