

III B. Tech I Semester Regular Examinations, February-2022
FARM MACHINERY AND EQUIPMENT - I
(Agricultural Engineering)

Time: 3 hours

Max. Marks: 75

Answer any **FIVE** Questions **ONE** Question from **Each unit**
All Questions Carry Equal Marks

UNIT-I

1. a) Explain about Farm Mechanization along with merits and demerits. [8M]
b) List out mechanical properties of metals and explain different heat treatment processes. [7M]

(OR)

2. a) A farmer purchased 35 HP diesel tractor for Ra.600000/-. Its total working life 12000 hours and annual use 1000 hours. The annual interest is 16%. The tractor is being used with an 11-tine cultivator costing Rs.50000/-. The shovel spacing is 22.5 cm. Speed of cultivation is 6 kmph and field efficiency is 70%. Calculate (i) Cost of tractor in Rs./h and (ii) Cost of cultivation in Rs./ha. Assume appropriate values if necessary. [8M]
b) List out and explain different sources of Farm Power. [7M]

UNIT-II

3. a) Explain classification and objectives of tillage. [8M]
b) A five tine cultivator having tine spacing 8 cm, working depth of 5 cm and speed is 3 km/hr. Turning loss is 10%. Soil resistance is 0.6 kg/cm². Width of each furrow is 5 cm. Calculate
(i) Time to cover one hectare (ii) Maximum draft
(iii) Required power [7M]

(OR)

4. a) Draw diagram of indigenous plough and describe functions of each part. [8M]
b) Explain different types of mould boards and shares with line diagrams. [7M]

UNIT-III

5. a) Explain different soil properties effecting measurement of earth work projects. [8M]
b) List out different earth moving equipments and write the procedure for estimating the cost of production. [7M]

(OR)

6. a) Explain about bulldozers and classification of bulldozers. [8M]
b) Explain about wheel type trenching machine with line diagram. [7M]

UNIT-IV

7. a) Explain different types of seeding methods. [8M]
b) What are the seed metering mechanisms in seeds drills? Explain any two of them. [7M]

(OR)

8. a) Explain the procedure how to calibrate the seed drill. [8M]
b) What are the sprayers used for orchards? Describe any one of them with line diagram. [7M]

UNIT-V

9. a) Maximum yield of maize is obtained with a population of 40, 000 plants per hectare. The rows are 140 cm apart and an average emergence of 85% is expected. Find (i) How many seeds per hill should be planted if hills are 140 cm apart? [8M]
(ii) What would be seed spacing if crop is drilled?
b) Explain about riding type rice transplanter. [7M]

(OR)

10. a) Classify the rice transplaters and explain about drum seeder. [8M]
b) Describe how filed testing of transplater can be tested in field. [7M]
