

III B. Tech I Semester Supplementary Examinations, Dec/Jan -2022-23
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) What is Farm Mechanization? List out detailed classification of Farm Machines. [8M]
 b) A plough covers 1.2 m swath width at 3.5 kmph forward speed. Find the theoretical and effective field capacity if plough operates at field efficiency of 60%. [7M]

(OR)

- 2 a) Explain about different heat treatment processes for metals. [8M]
 b) What are different methods for estimating the depreciation? Explain about straight line method. [7M]

UNIT-II

- 3 a) Explain about disc harrows with line diagrams. [8M]
 b) How many acres can be covered by a harrow of 1.5 m width in a day of 8 hours with bullock power. 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. (Assume speed of Bullock). [7M]

(OR)

- 4 a) Explain about standard disc plough. [8M]
 b) Explain different plough accessories. [7M]

UNIT-III

5. a) What are the commonly used excavation equipment? Define percent swell, percent shrinkage and swell & shrinkage factors. [8M]
 b) The capacity of a truck is 12.25 cu.m of earth. If the earth weights 1762 kg/cu.m in situ and 1506 kg/cu.m loose what is the capacity of the truck expressed in cu.m bank measure. [7M]

(OR)

- 6 a) Draw and explain ladder type trenching machine. [8M]
 b) Explain different operations performed by bulldozers. List out job and management factors for estimating the ideal output. [7M]

UNIT-IV

- 7 a) Explain different seed metering mechanisms Explain about any one of them. [8M]
 b) List out different sprayers and explain about rocker sprayer. [7M]

(OR)

- 8 a) Explain calibration of seed drill and what are the functions of seed drill. [8M]
 b) The following results are obtained while calibrating a seed drill. Calculate the seed rate per ha. Number of furrows:10, spacing between furrows:20cm, diameter of drive wheel:1.5m, speed:500rpm, seed collected:20kg. [7M]

UNIT-V

- 9 a) Calculate the time required to spray 8.0 ha of a field crop by 16 X 40 cm boom sprayer operated at a speed of 7 kmph. Time lost in turning is 12 % and tank filling 8%. [8M]
- b) Explain about manual Rice Transplanter. [7M]
- (OR)
- 10 a) Classify rice transplanters and explain riding type rice transplanters. [8M]
- b) What is dusting and explain belly mounted duster. [7M]