

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)

B.Tech III Year II Semester Regular & Supplementary Examinations June-2025
TRACTOR SYSTEMS & CONTROLS

(Agricultural Engineering)

Time: 3 Hours

Max. Marks: 60

(Answer all Five Units 5 x 12 = 60 Marks)

UNIT-I

1 a What is gearbox and mention its types? State the principle of theory of gearing. CO1 L1 6M

b Explain about the working of fluid coupling with a neat sketch. CO1 L2 6M

OR

2 a Mention the different mechanical means of power transmission on farms. CO1 L1 6M

b Explain about sliding mesh gearbox. CO1 L5 6M

UNIT-II

3 a Mention the different types of steering system of tractor. CO2 L1 6M

b Explain about the internal expanding shoe brakes with neat diagram. CO2 L2 6M

OR

4 a Explain working of mechanical steering system with neat diagram. CO2 L5 6M

b Explain the principle of operation of hydraulic brake. CO2 L2 6M

UNIT-III

5 a Explain merits of hydraulic system over mechanical system. CO3 L2 6M

b Explain about the hitching of implements in tractor. CO3 L5 6M

OR

6 a Explain about the basic components of hydraulic system of tractor. CO3 L2 6M

b Explain the working of draft control of hydraulic system of tractor. CO3 L5 6M

UNIT-IV

7 a Write in detail about different tractor power outlets. CO4 L3 6M

b Explain about weighing method of C.G measurement of tractor. CO4 L2 6M

OR

8 a Define traction, tractive efficiency, gross tractive resistance (μ_g), net traction coefficient (μ), coefficient of rolling resistance (ρ). CO4 L1 6M

b Write about the safety devices and types of accidents of tractor. CO4 L3 6M

UNIT-V

9 a Discuss few ergonomic considerations for tractor safety. CO5 L6 6M

b Write in detail about tractor chassis. CO5 L3 6M

OR

10 a Write about different types of tractor tests. CO5 L3 6M

b Discuss about preparation procedure of tractor for testing. CO5 L6 6M

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