

Reg. No:

--	--	--	--	--	--	--	--	--	--

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

B.Tech IV Year I Semester Regular Examinations November/December-2022

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 gearing. L1 4M
b Explain about constant mesh and sliding mesh gearbox. L1 8M

OR

- 2 a What is the principle of operation of mechanical and hydraulic clutch? L3 4M
b Explain the working of differential unit with neat sketch. What is differential lock where it is used? L2 8M

UNIT-II

- 3 a What is the function of brake and where are the brake pedals located in tractor? L1 4M
b Explain advantages and working of power steering system with neat sketch. L1 8M

OR

- 4 a Explain the principle of operation of hydraulic brake with neat sketch. L1 6M
b Explain Toe-in, Toe-out, camber angle, caster angle and wheel base with neat diagram. L3 6M

UNIT-III

- 5 a Briefly explain about position control hydraulic system with neat sketch. L1 6M
b What is mixed control type hydraulic system and what are the advantages and disadvantages of hydraulic system. L1 6M

OR

- 6 a Explain about the hitching of implements in tractor. L1 6M
b Briefly explain the components of dash board of tractor. L1 6M

UNIT-IV

- 7 a Define tractive efficiency, gross tractive resistance (μ_g), net traction coefficient (μ), coefficient to rolling resistance (ρ). Determine the relationship between them. L2 8M
b What are the different tractor power outlets? L1 4M

OR

- 8 a What are the different types of PTO? Explain in detail. L2 6M
b What are the factors affecting traction? Explain any two factors in detail. L1 6M

UNIT-V

- 9 a Discuss the preparation of testing tractor performance. L2 6M
b What are the safety devices of tractor? List some ROPS of tractor. L1 6M

OR

- 10 a Discuss few ergonomic considerations for tractor safety. L2 6M
b What is the importance of tractor testing? Explain the different types of tractor testing. L3 6M

*** END ***

