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Reg. No: ☐☐☐☐☐☐☐☐☐☐

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)
B.Tech IV Year I Semester Regular Examinations February-2022
TRACTOR SYSTEMS & CONTROLS
(Agricultural Engineering)

Time: 3 hours   Max. Marks: 60

PART-A
(Answer all the Questions 5 x 2 = 10 Marks)

1	a	What is final drive?	L1	2M
	b	State the function of Steering arm and Tie rod.	L1	2M
	c	What is hydraulic system?	L1	2M
	d	List the traction aids.	L1	2M
	e	Define weight transfer.	L1	2M

PART-B
(Answer all Five Units 5 x 10 = 50 Marks)

UNIT-I

2	a	Discuss about differential unit with neat diagram.	L6	5M
	b	Explain sliding mesh gearbox.	L1	5M

OR

3		A single plate clutch with both sides effective has an outer diameter of 30 cm and inner diameter of 20 cm. The maximum intensity of pressure at any point in the contact surfaces does not exceed 1 Kg/cm2 . If the coefficient of friction is 0.3, determine the power transmitted by clutch operating at 2000 rpmspeed.	L6	10M

UNIT-II

4	a	Explain disc brake with neat sketch.	L1	5M
	b	Explain about camber angle, caster angle and toe in.	L1	5M

OR

5	a	Explain advantages and working of power steering system with neat diagram.	L5	5M
	b	Distinguish between clutch and brake.	L4	5M

UNIT-III

6	a	Distinguish between position control and draft control system.	L4	5M
	b	Explain draft control system with neat sketch.	L1	5M

OR

7	a	Explain ADDC in detail.	L5	6M
	b	Explain the construction and working of three-point linkage mechanism.	L2	4M

UNIT-IV

8	a	Distinguish between belt pulley and PTO	L4	6M
	b	What are the advantages of three-point linkage hitch in a tractor?	L1	4M

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OR

9	a	In detail explain the methods of determining the C.G measurement of tractor	L1	5M
	b	Determine drawbar pull of a track type tractor with 35 cm wide and 160 cm long track. The weight of tractor is 3500 kg. The lugs on the wheel are such that the soil issheared off in a plane area at the ends of lugs and the soil parameters are: C = 14 KPa, Ø = 300 , Kc =3 ,KØ =0.5 and n =0.2	L6	5M

UNIT-V

10	a	Explain the different types of tractor test in detail	L1	5M
	b	Illustrate in detail the tractor operation safety precautions	L2	5M

OR

11	a	Distinguish between chassis less tractor and tractor with chassi	L4	5M
	b	What are the different types of tyre? Explain them	L1	5M

END