Q.P. Code: 20EE0250 **R20**

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR

(AUTONOMOUS)

B.Tech I Year I Semester Regular Examinations July-2021

PRINCIPLES OF ELECTRICAL ENGINEERING

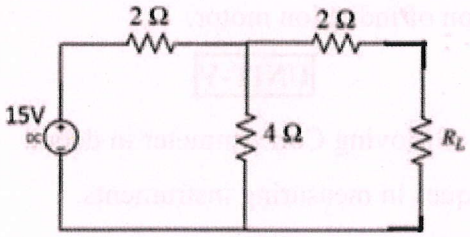
[Common to CSE, CSIT, CSE (AI & ML) & CSE (IOT & CS including BCT)]

Time: 3 hours Max. Marks: 60

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

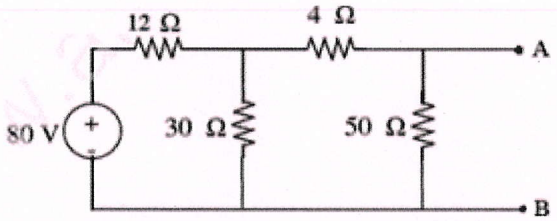
UNIT-I

1	**a**	State and prove Maximum Power Transfer Theorem.	**L2**	**6M**
	b	Find load current in the circuit shown for load resistance of 3 ohm.	**L3**	**6M**



OR

2	**a**	Derive the expression for equivalent resistance when two resistors R_1 and R_2 are connected in (i) Series configuration (ii) Parallel configuration	**L1**	**6M**
	b	Find the Thevenins equivalent circuit for the circuit shown below.	**L3**	**6M**



UNIT-II

3	**a**	Explain phasor relation for R, L and C elements with neat waveform.	**L1**	**6M**
	b	A resistor of 50 ohm and inductance of 10mH are connected in series across 200V, 50Hz supply. Determine (i) Impedance (ii) Current (iii) Power factor	**L4**	**6M**

OR

4	**a**	Derive an expression for RMS value of sinusoidal wave form.	**L3**	**6M**
	b	Derive an expression for Average value of sinusoidal waveform.	**L3**	**6M**

UNIT-III

5	**a**	Derive EMF equation of a DC generator.	**L2**	**6M**
	b	Explain OCC characteristics of DC Generator.	**L3**	**6M**

OR

6	a	Define back E.M.F and derive an expression for torque in a DC motor.	L3	6M
	b	List out various types of DC generators and draw diagrams.	L1	6M

UNIT-IV

7	a	Explain construction of a single –phase transformer with neat sketches.	L2	6M
	b	Write the short notes on the following wrt transformer. (i) Voltage regulation (ii) Efficiency (iii) Eddy Current loss	L3	6M

OR

8	a	Discuss the following with respect to induction motor (i) Slip ring rotor (ii) Wound rotor.	L5	6M
	b	Explain principle of operation of induction motor.	L2	6M

UNIT-V

9	a	Explain operating principle of Moving Coil Ammeter in detail.	L2	6M
	b	Explain various types of torques in measuring instruments.	L1	6M

OR

10	a	Explain the extension of range of ammeters and derive necessary formula.	L3	6M
	b	Explain construction and operation of attraction type Moving Iron Instrument.	L2	6M

*** END ***