Q.P. Code: 18EE0239 **R18**

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SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR

(AUTONOMOUS)

B.Tech I Year II Semester Supplementary Examinations July-2021

BASIC ELECTRICAL ENGINEERING

(Common to ECE, CSE & CSIT)

Time: 3 hours Max. Marks: 60

PART-A

(Answer all the Questions **5 x 2 = 10** Marks)

1	**a**	What is Circuit and Network?	**2M**
	b	Write Expressions for Voltages and Current in Three Phase balanced system.	**2M**
	c	Why Transformer rating will be in KVA?	**2M**
	d	Why single-phase induction motor is not self-starting?	**2M**
	e	What is Earthing?	**2M**

PART-B

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

UNIT-I

2	**a**	Write the Statement of Superposition Theorem.	**4M**
	b	Find the current passing through 3Ω Resistor for the circuit shown below in Fig.(a) by using Superposition Theorem?	**6M**

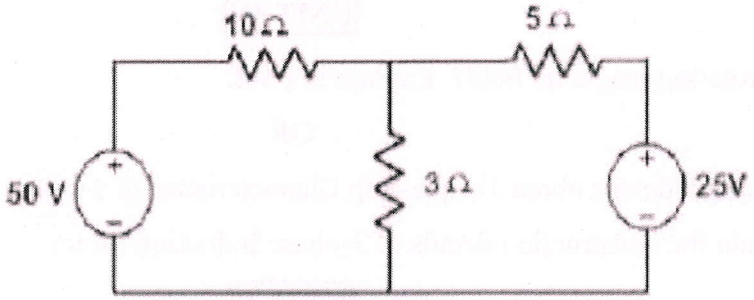
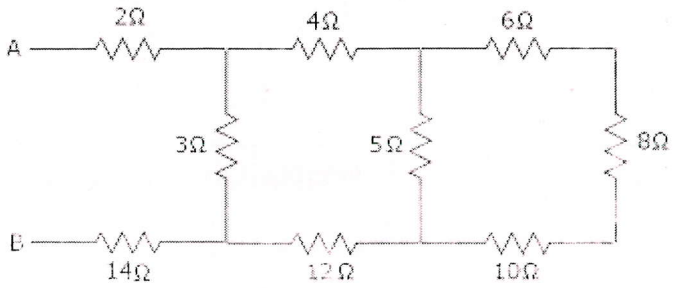


Fig.(a)

OR

3	**a**	Explain the circuit elements R, L & C.	**6M**
	b	Find the Equivalent Resistance between A & B to the following figure.	**4M**



UNIT-II

4 Derive an expression for the current and impedance for a series RL and RC circuit excited by a Sinusoidally Alternating Voltage. Draw the Phasor Diagrams. **10M**

OR

5 **a** Define power factor, apparent power, active power and reactive power. **4M**

b Z1 and Z2 are in parallel where currents corresponding impedances are I1 = 50∟10 and I2= 20∟30. If the applied voltage is 100∟15V, find true power, reactive power and apparent power in each branch. **6M**

UNIT-III

6 **a** Explain the briefly the construction and working of a single-phase transformer. **6M**

b A 100KVA transformer has primary and secondary turns of 400 and 100 respectively. Its primary and secondary resistance and reactance are: R1=0.3Ω, R2=0.15Ω, X1=1.1Ω, X2=0.5Ω, supply voltage is 2400V.Calculate equivalent resistance and reactance on the primary side. **4M**

OR

7 **a** What is meant by autotransformer? What are the advantages of Autotransformer when compared to two winding transformer? **8M**

b A 500 KVA, 1200/440V, 50Hz single-phase transformer has 200 turns of secondary. Calculate the primary number of turns. **2M**

UNIT-IV

8 What is rotating magnetic field? Explain in brief. **10M**

OR

9 **a** Explain in details about Torque-Slip Characteristics of 3-phase Induction Motor. **5M**

b Explain the construction details of 3-phase Induction Motor. **5M**

UNIT-V

10 Explain the following electrical wiring system with necessary diagrams. **10M**
(i) CTS wiring and (ii) Concealed wiring

OR

11 Explain briefly about earthing and how it plays an important role in installation? **10M**

END