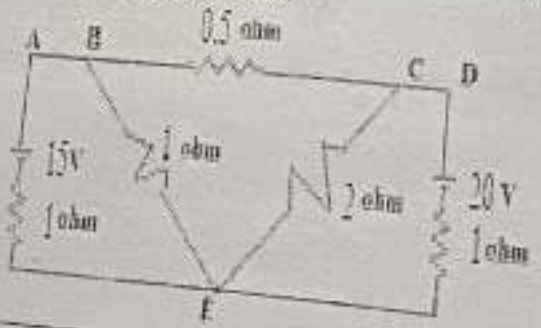
Name: Student University Roll No.:		Printed Pages:2
School of Engineering First Sessional Examination, Odd Semester (AS: 2023-24) B. Tech: CSIK, CSIL, CSE(CCML)-I, CSE(IOTBC)-I & CSE(AI) I.A TO I.F Year: I		Semester: I
Course Title: Basic Electrical Engineering Course Code: NEE4101		Max Marks: 30 Time: 1 hr
Instructions if any: Read the question Carefully.		
SECTION 'A' **Q.N.1. Attempt all parts of the following:**	Course Objective	Marks
a) What is an ideal voltage source?	CO1	1
b) State Millman's Theorem.	CO1	1
c) Define Kirchhoff's voltage Laws.	CO1	1
d) Define active power in AC.	CO2	1
e) State Bandwidth and Quality factor.	CO2	1
SECTION 'B' **Q.N.2. Attempt any two parts of the following:**	Course Objective	Marks
a) State and explain Maximum Power transfer theorem to solve network problems, and also write two applications.	CO1	7.5
b) By using nodal analysis, find the total power consumed in given circuit: 	CO1	7.5
c) Prove that the average power consumed in a pure capacitive circuit is zero.	CO2	7.5
d) Prove that $\mathbf{Irms} = \mathbf{Im}/\sqrt{2}$ for single phase AC circuit.	CO2	7.5

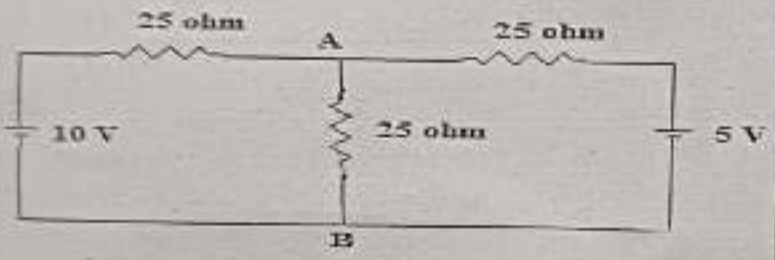
SECTION 'C'		Course Objective	
Q.N.3. Attempt any one part of the following:			
a)	Explain two wattmeter-method for the measurement of three phase AC power.	CO2	10
b)	Three phasors: $X = 3 + j4,\ Y = 3 + j0,\ Z = 10\ \angle 60^0$ Find: $\frac{YZ}{X}$ Calculate the current in branch AB in given circuit, using Thevenin theorem.  	CO1	10
c)	Three similar coils each having a resistance of 5ohm and an inductance of 0.02H are connected in delta to a 440V, 3-phase, 400V, and 50Hz supply. Calculate the line current and total power absorbed.	CO2	10

Table 1: Mapping between COs and questions

(Number of COs may vary from course to course)

COs	Questions Numbers	Total Marks
CO1	1 (a, b, c), 2(a, b), 3(b)	28
CO2	1(d, e) 2(c, d) 3(a, c)	37