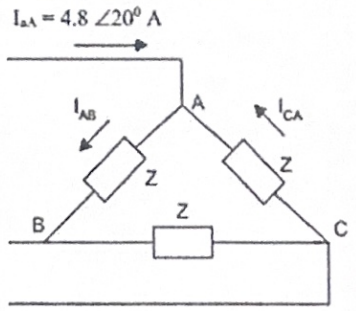
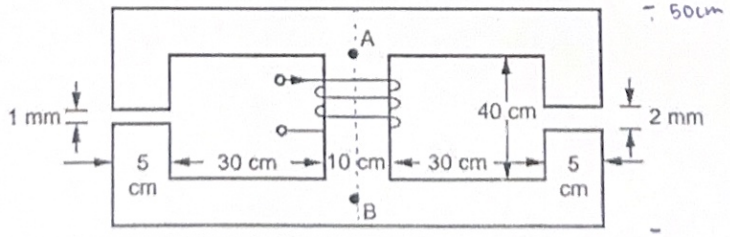
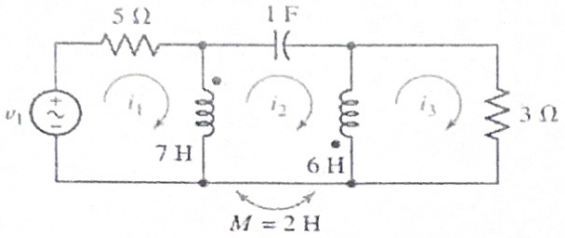
Reg. No.:
Name:

VIT
Vellore Institute of Technology
(Deemed to be University under section 3 of UGC Act, 1956)

Continuous Assessment Test - 2 (CAT 2) – December 2022

Programme	:	**B.Tech.**	Semester	:	**FALL 2022 – '23**
Course	:	**Basic Electrical and Electronics Engineering**	Code	:	**BEEE102L**
			Slot	:	**B1**
Faculty	:	**Dr. D. R. Binu Ben Jose**	Class Number	:	**CH2022231700078**
		Dr. S. Kuruseelan			**CH2022231700076**
		Prof. AN. Abhirami			**CH2022231700070**
		Dr. P. Sri Ramalakshmi			**CH2022231700080**
		Prof. V. Ananthakrishnan			**CH2022231700084**
		Dr. K. Iyswarya Annaporani			**CH2022231700068**
		Dr. Rupa Mishra			**CH2022231700072**
		Dr. D. Subbulekshmi			**CH2022231700074**
		Dr. G. Kanimozhi			**CH2022231700082**
Time	:	**1 hour, 30 minutes**	Max. Marks	:	**50**

Q. No.	Question Description	Marks
1.	In a simple three phase balanced 3 wire system, the phase sequence is abc and the source voltage is V_{AB} = 120<30 V (lead by 30°). The supply is connected to a three phase delta load. If the line current is 4.8<20 A (lead by 20°), find the power factor and the per phase resistance and reactance of the delta load. 	10
2.	For the magnetic circuit shown below has a coil of 1000 turns with the core thickness of 5 cm and exciting current of 0.5 A. Find the flux density and flux in each of the outer limbs and the central limb. Assume the relative permeability for iron of the core to be infinity (∞). 	10

3.	Write a complete set of phasor mesh equations for the circuit shown below  	10
4.	Simplify the expression i. $Y = \bar{A}B + ABD + A\bar{B}C\bar{D} + BC$ ii. $f = \overline{xz} + y\bar{z} + \overline{yz} + xyz$ iii. $f = \bar{A}B + AB + A\bar{B}$	10
5.	a. Using K-map, minimize the function F (A, B, C, D) given in SOP representation. b. Draw a logic diagram for the reduced function using basic gates. F (A, B, C, D) = Σ(2,5,7,8,10,12,13,15).	10