VIT

Vellore Institute of Technology

(Deemed to be University under section 3 of UGC Act, 1956)

Vellore – 632014, Tamil Nadu, India

SCHOOL OF ELECTRICAL ENGINEERING

FALL SEMESTER 2023-2024

CAT-2

SLOT: E2+TE2

Programme Name & Branch	:	B Tech Computer Engineering (SCORE)	Course Code: BEEE102L
Course Name	:	Basics of Electrical and Electronics Engineering	
Faculty Members	:	Dr. Washima Tasnin Dr. Mahendra Chilukuri Dr. Anusuya Bhattacharyya	
Class Number(s)	:	VL2023240107788, 7776, 7782	

Duration: 90 minutes **Max. Marks : 50**

General instruction(s): All questions are compulsory

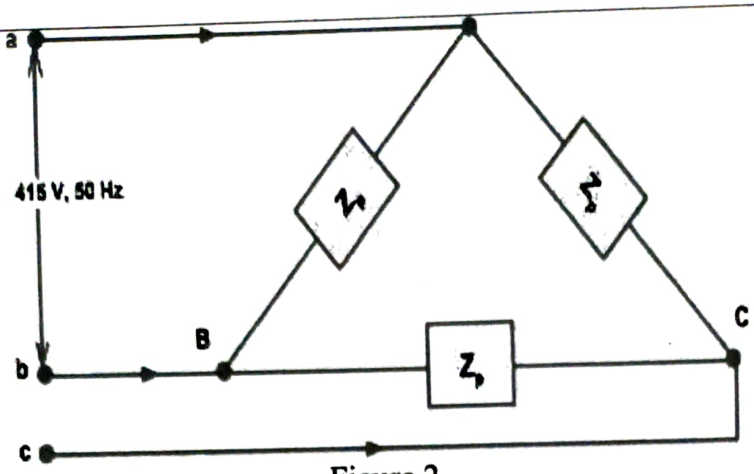

Figure 2

3.	**A magnetic circuit shown in Figure 3 has square core with a total mean path length of 40 cm with an air gap length cut into it of 0.5 cm and an area of 2 cm × 3 cm. If the core carries a flux of 0.5 mWb, and has a relative permeability of μ_r=10000, (a) Compute the magnetic flux density (B) in the core and in the air gap. (b) Find the current (I) needed to produce this magnetic flux density if the number of turns is 500.**	10
4.	**Simply the following Boolean logic using the algebraic rules** (a) $AB + \overline{AC} + A\bar{B}C(AB + C)$ (b) $\bar{A}BC + A\bar{B}\bar{C} + \bar{A}\bar{B}\bar{C} + A\bar{B}C + ABC$	10
5.	**A lift operating for eight floors in our SJT building stops at even floors. (a) Obtain truth table assuming lift starts at ground floor. (b) Simplify the logic output obtained in the truth table using k-Map and (c) Draw logic diagram using gates.** F_{lift} (A, B, C) = {0,2,4,6}	10

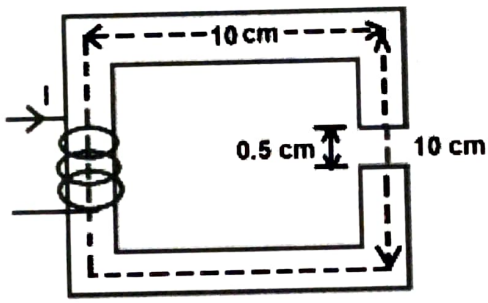

Figure 3