umber (s): VL2022230500372, VL2022230505828

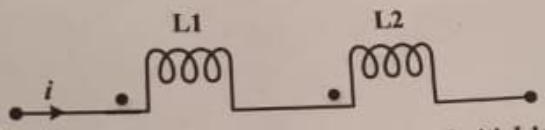
Name & code: BEEE102L, Basic Electrical and Electronics Engineering

Name : Arun S L, Rajesh Kumar Lenka

um Marks: 50

Exam Duration: 90 Min.

ral instruction(s): Answer ALL Questions, Use three decimal points for the numerical calculations

No.	Question	Max Marks
	(a) Convert the following decimal number to an equivalent binary number $(28.5245)_{10}$	10
	(b) Convert the following decimal number to an octal equivalent number. $(96.239)_{10}$	
	(c) Convert the following hexadecimal number to an equivalent decimal number. $(B20F.2A)_{16}$	
	(d) Convert the following hexadecimal number to an octal equivalent number. $(AF8D.BD7)_{16}$	
	(e) Convert the following decimal number to an equivalent hexadecimal number. $(89.845)_{10}$	
	Simplify the expression F (A, B, C, D) = $\sum m(2,3,8,9,10,11,12,13,14,15)$ by using the Karnaugh map (K-map), draw the simplified expression using the 2-input NAND logic gate.	10
	A balanced star-connected load with per phase resistance 10 Ω and inductance 15 mH is connected to a star-connected balanced three-phase source of 400 V, 50 Hz supply. Determine the total power dissipated across the load.	10
	 The resultant inductance of the circuit shown above is 45 mH with L1= 12 mH and L2=13 mH. Find the mutual inductance and coefficient of coupling of the coils.	10
	A magnetic ring core is composed of four sections 1, 2, 3, and 4. The cross-sectional area are A_1=1 cm², A_2=2 cm², A_3=3 cm², and A_4=4 cm². The mean arc lengths are L_1= 10 cm, L_2= 15 cm, L_3= 20 cm, and L_4= 25 cm. The relative permeability of the core material is 1000. The flux density in section 3 area is 12 T. If the current through the coil is 2 A, compute the number of turns of the coil.	10