	Reg. No.:	
	Name :	

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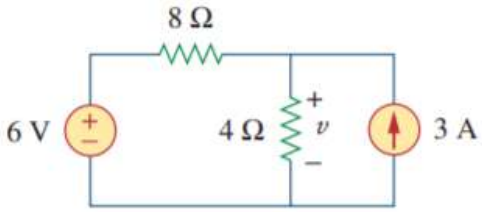
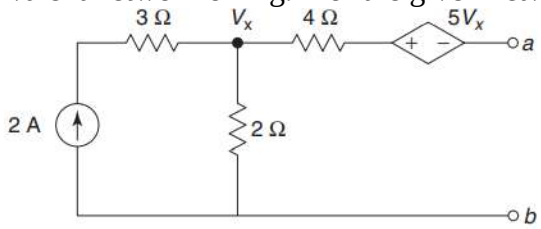
TERM END EXAMINATIONS (TEE) – December 2021- January 2022

Programme	:	**B-Tech (BCY, BAI, BAS, BCG, BEC, BHI, BMR, BSA)**	**Semester**	:	**Fall 2021-22**
Course Name	:	**Electric Circuits and Systems**	**Course Code**	:	**EEE1001**
Faculty Name	:	**Dr. Abhay Vidyarthi**	**Slot / Class No**	:	**A11+A12+A13/0045**
Time	:	**1 ½ hours**	**Max. Marks**	:	**50**

Answer ALL the Questions

Q. No.		Question Description	Marks
		PART - A (30 Marks)	
1	(a)	Use the superposition theorem to find v in the circuit of Fig.1  Fig.1	10
		OR	
	(b)	Two inductors are connected in parallel. Their equivalent inductance when the mutual inductance aids the self-inductance is 6 mH and it is 2 mH when the mutual inductance opposes the self-inductance. If the ratio of the self- inductances is 1:3 and the mutual inductance between the coils is 4 mH, find the self-inductances	10
2	(a)	Explain the working of a 3 phase transformer with the help of a neat sketch.	10
		OR	
	(b)	With the help of a neat sketch, explain the working of any two: I. BJT II. PN Junction Diode III. Rectifier IV. SCR V. MOSFET.	10
3	(a)	Write the truth table of Full Adder and Half Adder and design a Full Adder using two Half Adders and an OR gate...	10
		OR	

	(b)	To design a 2-bit ripple-up counter using a $J-K$ flip flop	10
PART - B (20 Marks)			
4		Obtain the Thevenin equivalent network of Fig.2 for the given network at terminals a and b.  Fig.2	10
5		Why the gate to source voltage is not used in an N Channel Depletion type MOSFET? What is pinch –off voltage and what happens to the drain to source current at this pinch –off voltage and what is to be done to increase the value of the drain to source current once if it reaches its saturation value? Explain the working of N Channel Depletion type MOSFET with the help of a neat sketch	10
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