



MARRI LAXMAN REDDY
INSTITUTE OF TECHNOLOGY AND MANAGEMENT

(AN AUTONOMOUS INSTITUTION)
 (Approved by AICTE, New Delhi & Affiliated to JNTUH, Hyderabad)
 Accredited by NBA and NAAC with 'A' Grade & Recognized Under Section 2(f) & 12(B) of the UGC act, 1956

I B.TECH I Sem Supply End Examination, July 2021
BASIC ELECTRICAL ENGINEERING
(EEE, CSE & IT)

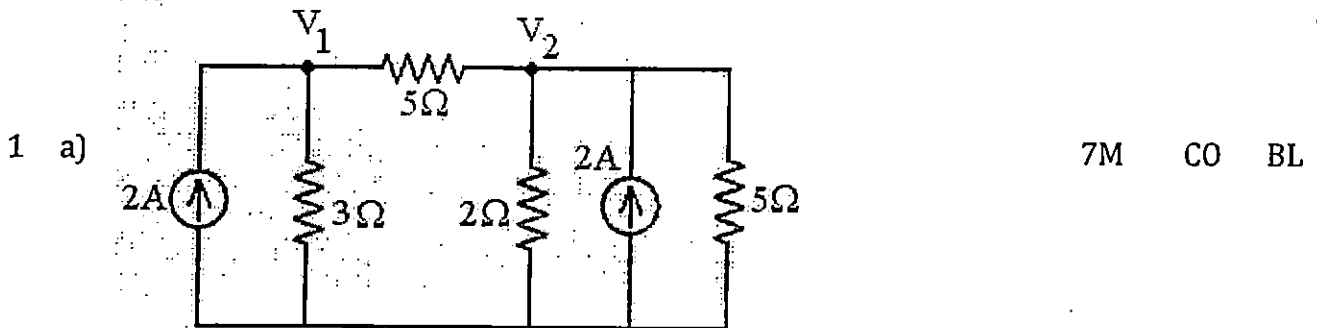
Time: 3 Hours.

Max. Marks: 70

Note: 1. Answer any FIVE questions.

2. Each question carries 14 marks and may have a, b as sub questions.

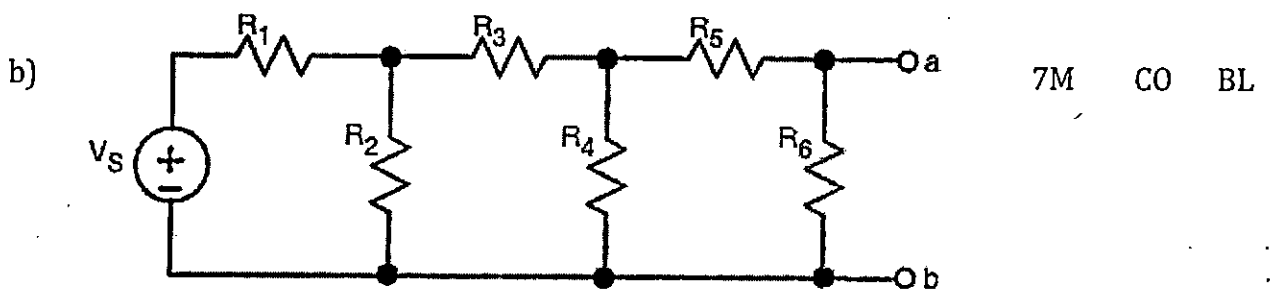
Find the node voltages in the below circuit as shown in figure



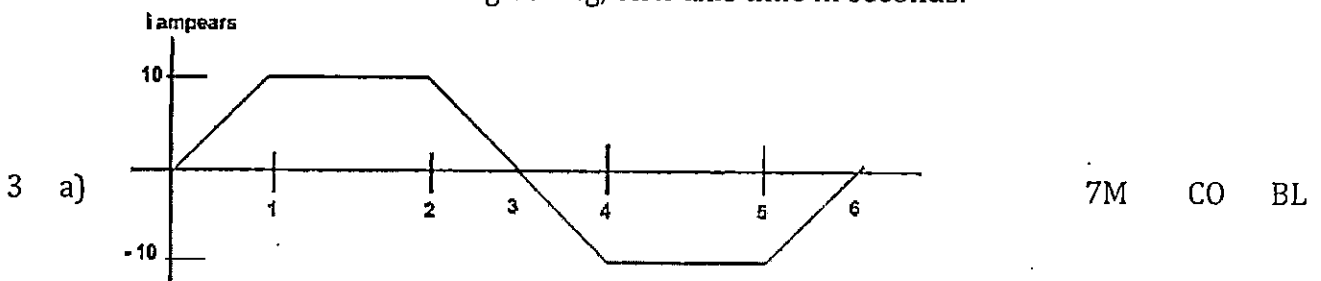
b) State the superposition theorem with example 7M CO BL

2 a) State the thevenin's theory and Norton's theory 7M CO BL

For the circuit show below $R_1 = 6k\Omega$, $R_2 = 80k\Omega$, $R_3 = 4k\Omega$, $R_4 = 25k\Omega$, $R_5 = 4k\Omega$, $R_6 = 45k\Omega$ and $V_s = 40v$ find the values for Thevenin's equivalent circuit respect to the terminals a and b.



Find the form factor of the given fig, on x-axis time in seconds.



3	b)	A series connected RLC circuit has $R=15\text{ohm}$ $L= 40\text{mH}$, $C= 40\text{micro farad}$. Calculate current, power factor, active power and voltage drop across various elements, if applied voltage is 750Volts, frequency= 125Hz .	7M	CO	BL
4	a)	Explain the construction details and working principle of 1-phase transformer and draw the equivalent circuit diagram of 1-phase transformer.	14M	CO	BL
5	a)	A coil having a resistance of 7Ω and an inductance of 31.8mH is connected to 230V, 50Hz ac supply. Calculate i) Circuit current ii) Power factor iii) Phase angle iv) Power Consumed.	7M	CO	BL
	b)	In a 50kVA transformer, the iron loss is 500W and full-load copper loss is 800W. Find the efficiency at full-load and half load at 0.8p.f lagging.	7M	CO	BL
6		Derive the torque equation of a 3-phase induction motor and explain the slip torque characteristics of 3-phase induction motor	14M	CO	BL
7	a)	What are the methods used to control the speed of a DC motor? Explain each in detail.	7M	CO	BL
	b)	What are the different types of wires and cables? explain.	7M	CO	BL
8	a)	Explain the operation of MCB and MCCB components of LT switchgear.	7M	CO	BL
	b)	What are the different types of batteries? explain the characteristics of batteries	7M	CO	BL

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