



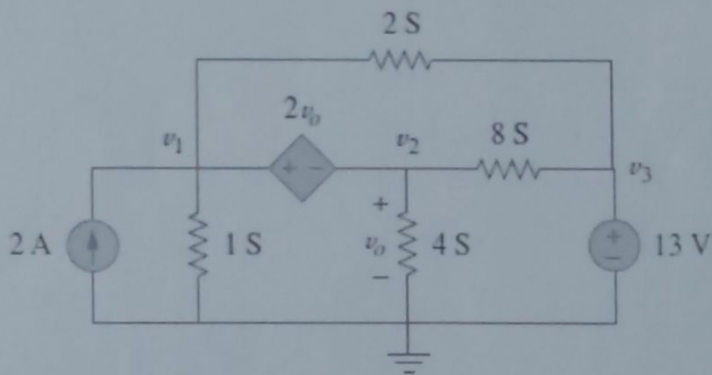
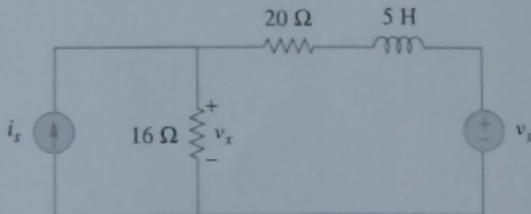
SCHOOL OF ELECTRONICS ENGINEERING
CONTINUOUS ASSESSMENT TEST -I
WINTER SEMESTER 2024-2025

SLOT: C2+TC2+TCC2

Programme Name & Branch : B.Tech - BEC, BML, BVD
Course Code and Course Name : BECE 203L and Circuit Theory
Faculty Name(s) : SATHYA P, KATHIRVELAN J, VINOTH BABU K, VIJAY KUMAR, YOGESH KUMAR CHOUKIKER, BISWAJIT DWIVEDY, SHAH ARPAN HASMUKH MAYURI
Class Number(s) : VL2024250500735, 0745,0743,0744,0732,0741,0742
Date of Examination : 29-01-2025
Exam Duration : 90 minutes Maximum Marks: 50

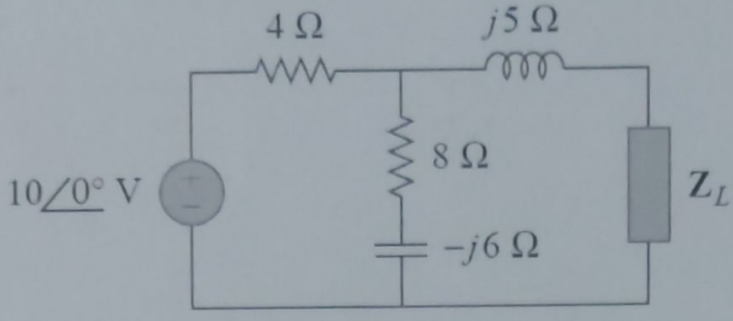
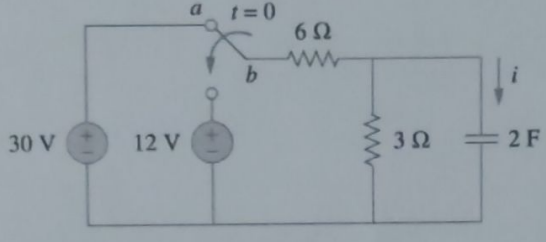
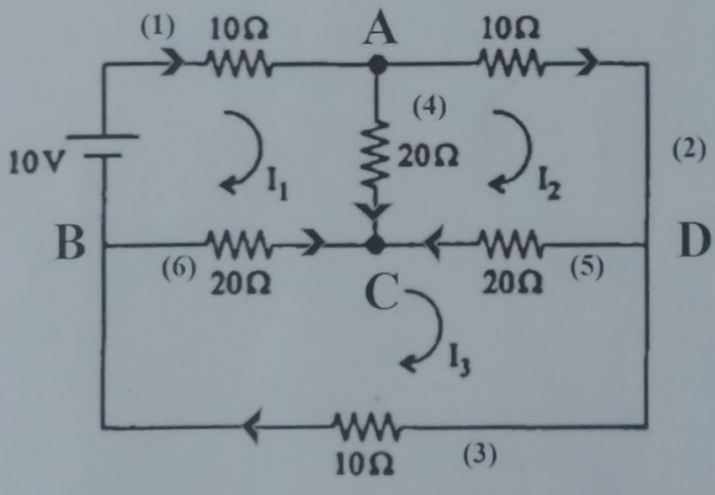
General instruction(s):

- Answer All Questions
- M - Max mark; CO - Course Outcome; BL - Blooms Taxonomy Level (1 - Remember, 2 - Understand, 3 - Apply, 4 - Analyse, 5 - Evaluate, 6 - Create)
- Course Outcomes:
 - CO1: Apply the knowledge of various circuit analysis techniques such as mesh analysis, nodal analysis, and network theorems to investigate the given network.
 - CO2: Analyse the resonance and transient response of the first order, second order circuits.
 - CO3: Able to solve the networks using graphical approach.
- Assume suitable values for any missing information

Q. No	Question	M	CO	BL
1.	Determine voltages v_1 , v_2 and v_3 of the circuit in Figure 1 using nodal analysis.  Figure 1	10	1	3
2.	Apply the superposition theorem to obtain v_x in the circuit of Figure 2. Let $v_s = 50 \sin 2t$ V and $i_s = 12 \cos(6t + 10^\circ)$ A.  Figure 2	10	1	3
3.	Determine the load impedance (Z_L) that maximizes the average power drawn from the circuit in Figure 3. Calculate the maximum average power.			



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	 Figure 3	10	1	3
•4.	The switch in Figure 4 has been in position <i>a</i> for a long time. At time $t = 0$, it moves to position <i>b</i>. Calculate $i(t)$ for all $t > 0$.  Figure 4	10	2	3
•5.	Construct the network graph for the circuit given in Figure 5. Compute the incidence matrix. For a tree consisting of (4, 5, 6), develop tie-set matrix and cut-set matrix.  Figure 5	10	3	3