08/09/25
9:30

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -1EXAMINATION- 2025

B.Tech-I Semester (CSE (all branches)/IT/ECE/ECS/EEVLSI/CE)

COURSE CODE (CREDITS): 25B11EC111 MAX. MARKS: 15

COURSE NAME: BASIC ELECTRONICS

COURSE INSTRUCTORS: Prof. Rajiv Kumar, Prof. Shruti Jain, Dr. Harsh Sohal, Dr. Shweta Pandit, Dr. Salman Raju, Dr. Nishant Jain, Dr. Alok Kumar, Lt. Pragya Gupta.

MAX. TIME: 1 Hour

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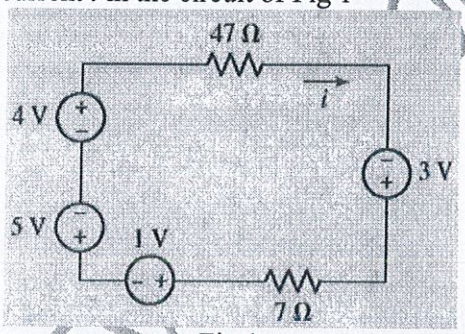
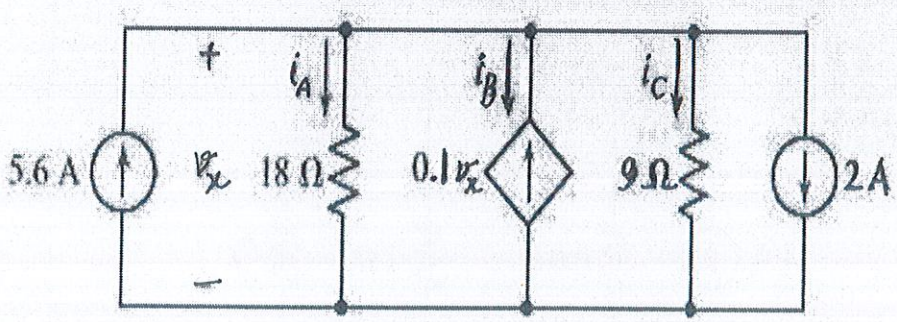
***Note:*** *(a) All questions are compulsory.*

*(b) The candidate is allowed to make Suitable numeric assumptions wherever required for solving problems.*

| Q.No | Question | CO | Marks |
|---|---|---|---|
| Q1 | i. Determine the current $i$ in the circuit of Fig 1 [2]<br>  <br><br>Fig 1<br>ii. For the single-node-pair circuit of Fig. 2, find $i_A$, $i_B$, and $i_C$. [3]<br>  <br><br>Fig 2 | 1 | 5 |
| Q2 | i. With the help of nodal analysis, determine the voltage difference $v_1 - v_2$ in the circuit shown in Fig 3. [2] | 1 | 5 |

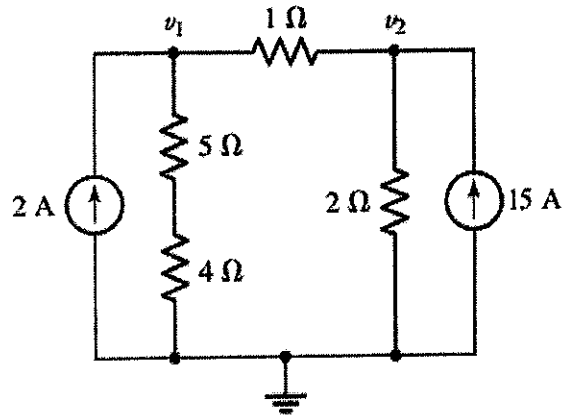



Fig 3

ii. Using mesh analysis, determine the power (in watts) dissipated by the 4 Ω resistor in the circuit shown in Fig 4. [3]

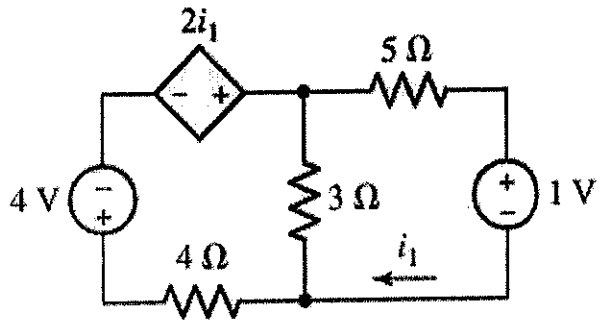



Fig 4

Q3. i. Suppose you are designing an electronic system and need to connect a load resistor $R_L$ to a given circuit. Determine load current using Norton's Theorem. Assume $R_L = 1\text{k}\Omega$. [4]

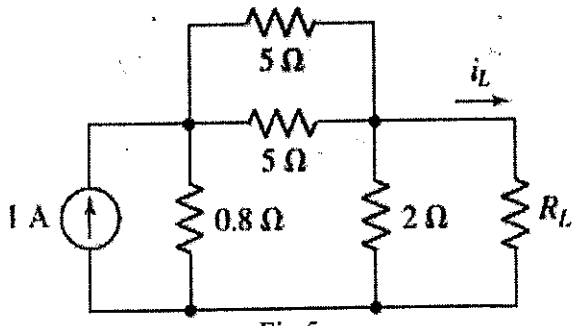



Fig 5

ii. Convert the Norton's equivalent circuit obtained in Q 3 (*i*) to Thevenin's equivalent circuit using source transformation. [1]

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