

Code :9A02305

R9

II B.Tech I Semester(R09) Supplementary Examinations, May 2011

ELECTRICAL CIRCUITS

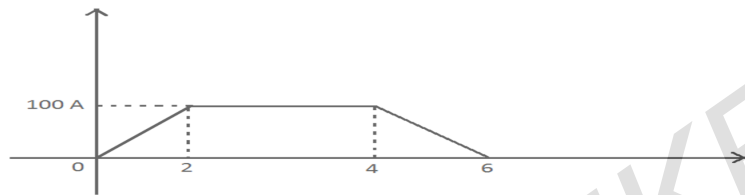
(Electrical & Electronics Engineering, Electronics & Instrumentation Engineering, Electronics & Control Engineering, Electronics & Communication Engineering, Electronics & Computer Engineering)

Time: 3 hours

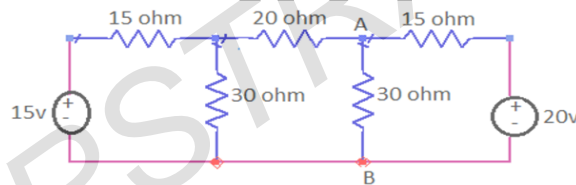
Max Marks: 70

Answer any FIVE questions
 All questions carry equal marks
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- What is the difference between an ideal source and a practical source. Draw the relevant characteristics of the above sources.
 - A current wave form flowing through an inductor of 1mH is shown in the figure. Obtain and sketch the waveform of the voltage across the inductor.



- State and explain Kirchoff's laws using neat diagrams.
 - Determine the current in branch A-B by Kirchoff's laws.



- Derive the basic equation of an alternating quantity. Hence state its various forms.
 - A 50Hz sinusoidal voltage applied to a single phase circuit has its RMS value of 200V. its value at $t=0$ is 28.3 volt positive. The current drawn by the circuit is 5A RMS and lags behind the voltage by one sixth of a cycle. Write the expressions for instantaneous values of voltage and current.
- Show that the locus of the current in an R-L circuit with R variable is a semicircle. Find the radius and the center of the circle.
- State and explain Faradays laws of Electromagnetic Induction.
 - Explain dynamically induced emf.
 - An iron ring has mean diameter of 20 cm and a cross section of 2 cm^2 . It is uniformly wound with 2000 turns with insulated wire and a current of 2A produces a flux of 0.2mwb. calculate relative permeability of iron.
- Draw the network graph for the network shown in figure, Find the number of possible trees for that graph and draw all possible trees.



7. Find maximum power transferred to the load resistance R_L for the circuit shown fig 1.
8. Find the current through 12Ω resistor using superposition theorem. fig 2.

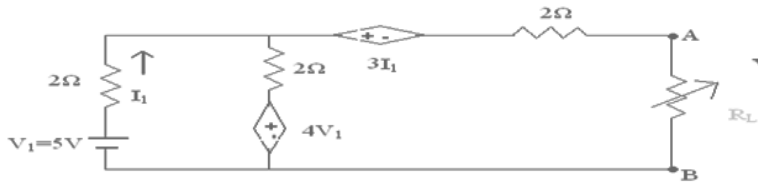


Figure 1: Figure for Question No.7

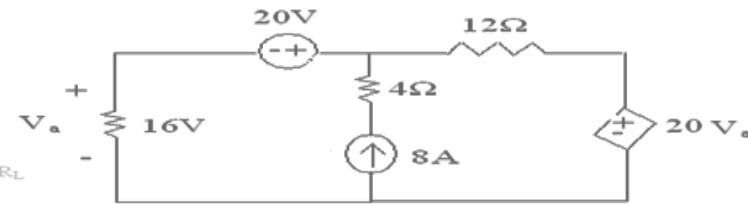


Figure 2: Figure for Question No.8

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