Please check that this question paper contains 09 questions and 02 printed pages within first ten minutes.

[Total No. of Questions: 09] [Total No. of Pages: .....]

Uni. Roll No. …….

Program: B.Tech.
Semester: Third
Name of Subject: Electrical Circuit Analysis
Subject Code: PCEE-101
Paper ID: 16064

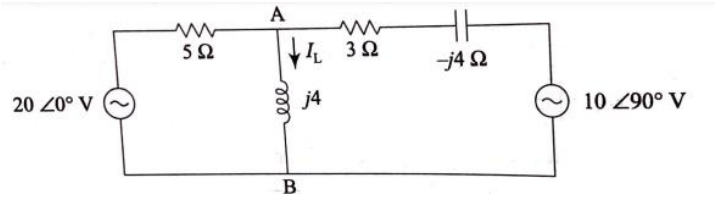
12-01-2022(M)

Time Allowed: 02 Hours **Max. Marks: 60**

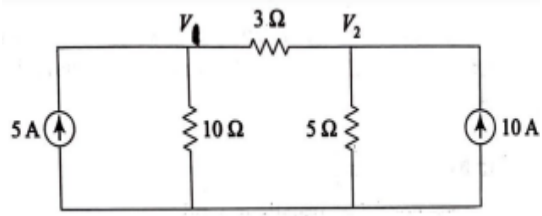
NOTE:

1) Each question is of 10 marks.
2) Attempt any six questions out of nine
3) Any missing data may be assumed appropriately

Q1. For the circuit shown below determine the load current I_L using Norton's Theorem.



Q2. Determine the currents in each branch in the network shown below using nodal analysis.

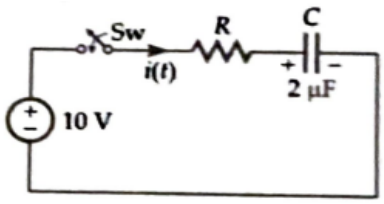


Q3. Derive step current response for RL parallel circuit using Laplace transformation technique.

Q4. A series RC circuit has R= 15 Ω and C=100μF. It is connected in parallel to an inductor of 500mH and the combination is connected across a 100V, 50Hz source. Find the current in resistance and inductor. Draw the vector diagram showing the total current.

Q5. Analyse sinusoidal response of series RLC circuit.

Q6. Find current after switch is closed at time t=0. Assume initial charge on capacitor as 100μC , R= 1ohm



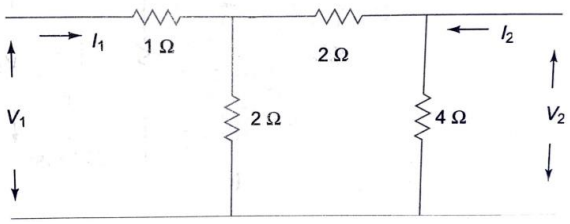
Q7. a) Determine Laplace of $\cos^2\theta$.

b) State and prove Maximum Power Transfer Theorem. **(5+5)**

Q8. Give steps to obtain Cauer Form I for any given driving point impedance function in LC network. Synthesize

$Z(s) = \frac{10s^4+12s^2+1}{2s^3+2s}$ in Cauer I Form.

Q9. Obtain the expression for Z parameters in terms of Y parameters. Also find z parameters for the given network



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