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CEI1326

Network Analysis & Synthesis (New) (1050)

P. Pages : 3

Time : Three Hours

Max. Marks : 100

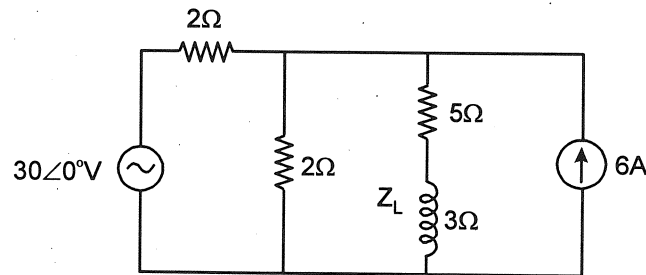
Instructions to Candidates :

1. Do not write anything on question paper except Seat No.
2. Answersheet should be written with blue ink only. Graph or diagram should be drawn with the same pen being used for writing paper or black HB pencil.
3. Students should note, no supplement will be provided.
4. All questions are compulsory. Attempt **any two** from each question.
5. Assume suitable data if necessary.
6. Neat diagrams must be drawn whenever necessary.
7. Use of non programmable calculator is allowed.

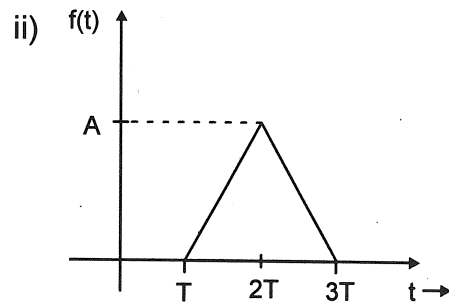
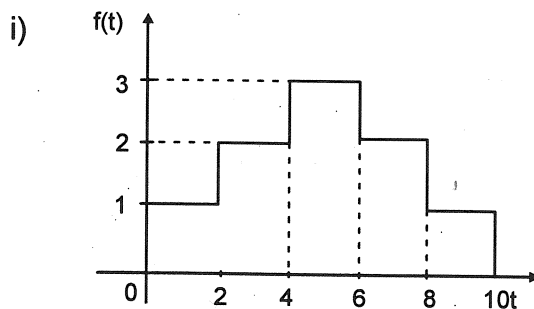
UNIT - I

1. Attempt **any two** from question one.

- a) Find the current through Z_L using Thevenin's equivalent ckt and verify the result using the Norton's theorem. Use Laplace transform method. **10**



- b) Obtain the Laplace transforms of the following. **10**



- c) Describe the pulse input response of the R-L circuit.

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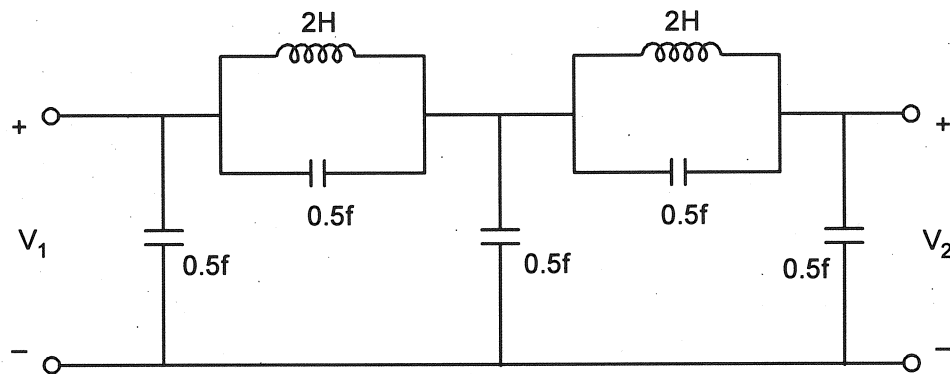
UNIT - II

2. a) State the necessary conditions for the transfer functions.

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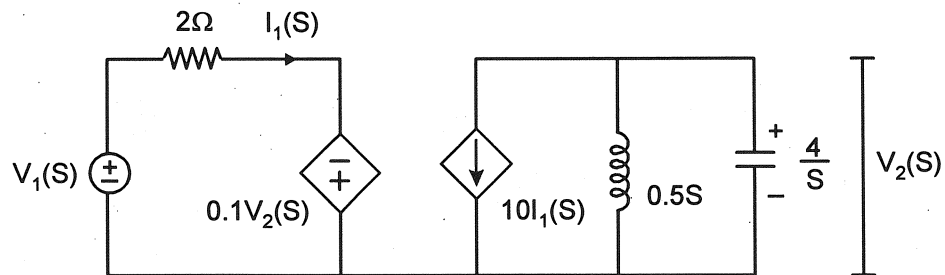
- b) Determine the voltage transform function $G_{12}(s)$ for the network given below.

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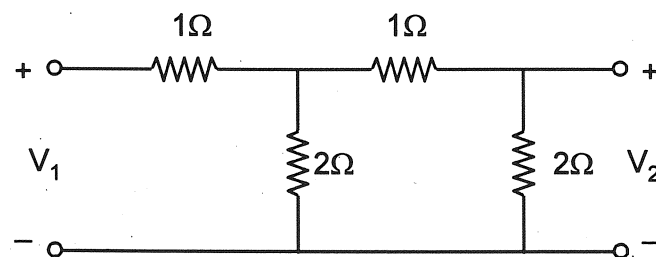
- c) Find the driving point admittance function and the respective pole-zero plot for the n/w given below.

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UNIT - III

3. a) Find the Z-parameters for the network given below and hence obtain y parameters.



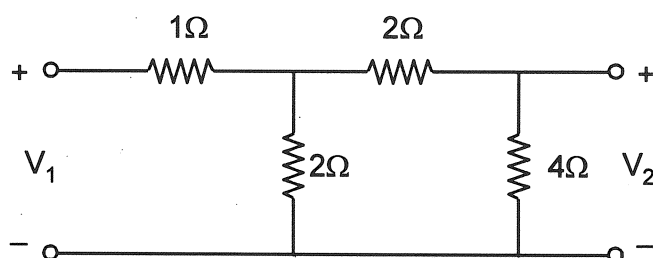
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- b) Obtain the resultant ABCD parameters when two part networks are cascaded.

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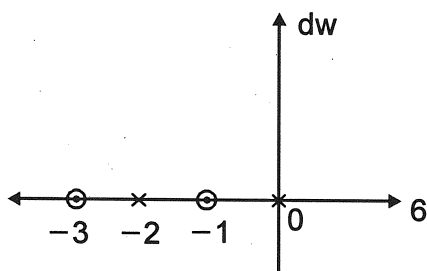
- c) Determine the hybrid parameters for the network shown below.

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UNIT - IV

4. a) Determine the range of values 'K' so that $P(S) = S^4 + S^3 + KS^2 + 2S + 3$ is Hurwitz. 10
- b) Test whether $F(S) = \frac{S^2 + 1}{S^3 + 4S}$ is a PRF. 10
- c) An impedance function has the pole-zero diagram as shown below. Find the impedance function such that $Z(-4) = 3/4$ & realize cauer I & foster II forms.



10

UNIT - V

5. a) Compare Butterworth and Chebyshev filter. 10
- b) Discuss the properties of Butterworth approximations with reference to cutoff frequency, DC gains, maximum gain etc. 10
- c) Design and realize a Chebyshev filter to meet the following specifications.
- Maximum passband ripple attenuation of 1dB.
 - Cut off frequency < 1.2 rad/sec.
 - Stop band attenuation of at least 40 db for $\omega \geq 4$ rad/sec.

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