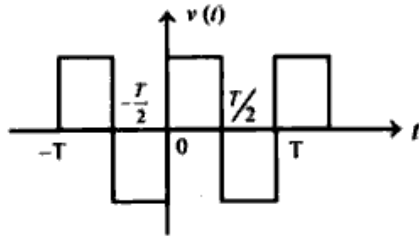


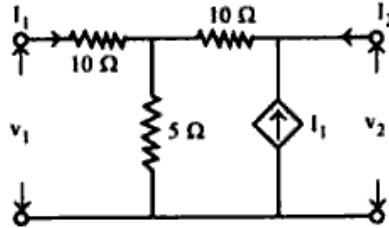
[4]

OR

Find the Fourier series for the square wave shown in figure.

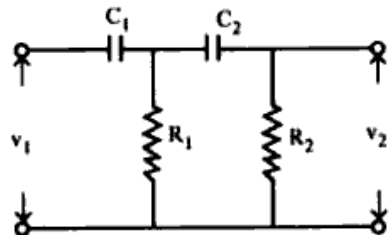


- Define driving point impedance.
- Define zeroes with respect to network function.
- Obtain the Z parameter in terms of Y parameters.
- Determine the Y parameter for the network shown in figure.



OR

Find the expression for the voltage transfer function for the network shown in figure.



Total No. of Questions :5]

[Total No. of Printed Pages : 4

Roll No

EE/EI/IC/EX-305

B.E. III Semester

Examination, June 2016

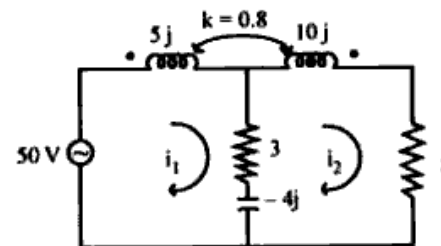
Network Analysis

Time : Three Hours

Maximum Marks : 70

- Note:**
- Answer five questions. In each question part A, B, C is compulsory and D part has internal choice.
 - All parts of each question are to be attempted at one place.
 - All questions carry equal marks, out of which part A and B (Max. 50 words) carry 2 marks, part C (Max. 100 words) carry 3 marks, part D (Max. 400 words) carry 7 marks.
 - Except numericals, Derivation, Design and Drawing etc.

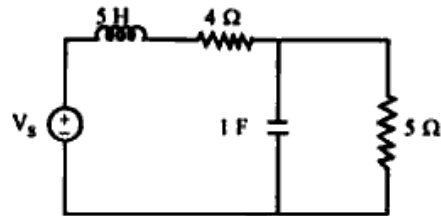
- What are active and passive network elements?
 - Define coefficient of coupling for coupled circuits.
 - Define Tree of a network graph.
 - Determine current i_2 , hence find the voltage across 5Ω resistor in the coupled circuit.



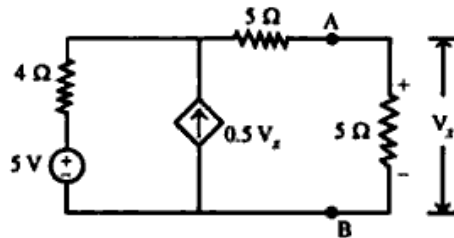
OR

[2]

In the given circuit the voltage across the capacitor, $V_c = 5 - 2e^{-3t}$. Find the voltage across the inductor.

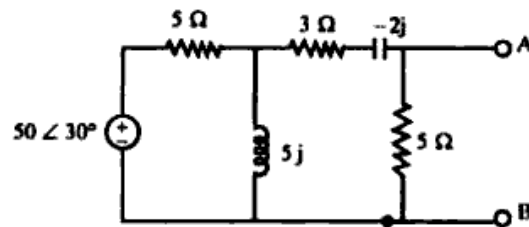


2. a) Write the statement of Millman's theorem.
- b) Write the statement of Superposition theorem.
- c) Write the statement of Maximum Power Transfer theorem for AC circuits.
- d) For the circuit shown in figure, draw the Thevenin's equivalent circuit and then find the power loss in 5Ω resistor.



OR

Obtain the Norton's equivalent circuit for the circuit given in figure.



3. a) Write the initial value theorem of Laplace transform.
- b) Find the Laplace transform of exponential function.

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Contd...

[3]

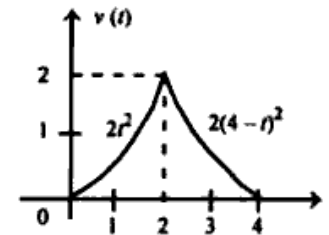
- c) Find the Laplace transform of $e^{-at} \sin \omega t$.
- d) Solve the following differential equation and find current i , if unit step voltage is applied to the system.

$$i(0) = 1, \frac{di(0)}{dt} = 2$$

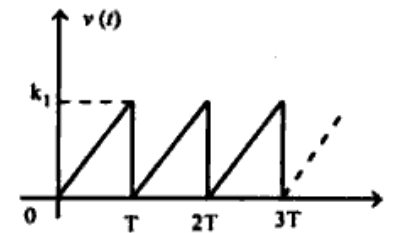
$$\frac{d^2i}{dt^2} + 4\frac{di}{dt} + 5i = 5u(t)$$

OR

Find $V(s)$ for waveform of figure.



4. a) What are Dirichlet conditions?
- b) Write the properties of Even and Odd functions.
- c) Define Amplitude spectrum and phase spectrum.
- d) The sawtooth waveform of voltage function is shown in figure, find its Fourier series.



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PTO