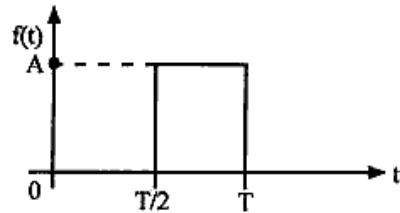
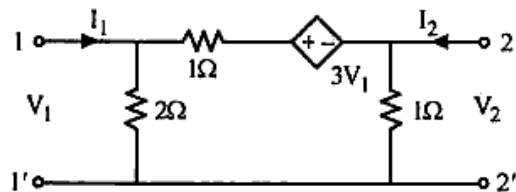


Obtain the Fourier series expansion of the waveform given below.



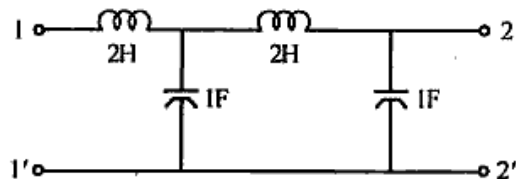
UNIT - V

- a) Define poles, zeros and pole zero plot.
- b) What is meant by an all pass function?
- c) Derive the condition of reciprocity for h parameters.
- d) Determine the Y parameters of the network given below.



OR

Determine the driving point impedance of the network given below.



Roll No

EC-305

B.E. III Semester
Examination, June 2016
Network Analysis

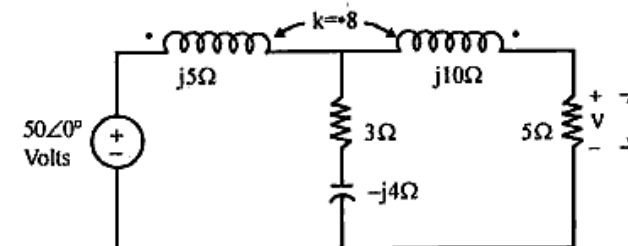
Time : Three Hours

Maximum Marks : 70

- Note:** i) Answer five questions. In each question part A, B, C is compulsory and D part has internal choice.
ii) All parts of each questions are to be attempted at one place.
iii) 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.
iv) Except numericals, Derivation, Design and Drawing etc.

UNIT - I

- 1. a) Explain the current division in a parallel circuit of three unequal impedances.
- b) Write a note on co-efficient of coupling in a magnetic circuit.
- c) Determine the expression for Bandwidth in a series resonance circuit.
- d) Compute the voltage V of the coupled circuit given below.



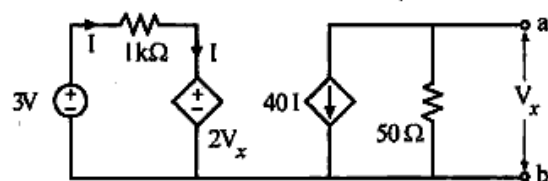
OR

A series RLC circuit consists of a resistance of $1\text{ k}\Omega$ and an inductance of 100 mH in series with a capacitance of 10 pF . 100 volts is applied as input across the combination determine :

- The resonant frequency
- Maximum current in the circuit
- Q factor of the circuit
- The half power frequencies

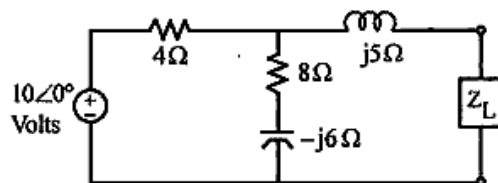
UNIT -II

- What is a sub graph of a graph? How we can obtain the rank of a graph?
- Explain following terms with reference to network topology:
 - Tree and Co-tree
 - Node and Branch
 - Twig and Link
- State and explain the Norton's theorem.
- Find the Thevenin's equivalent across a-b terminals of the circuit given below:



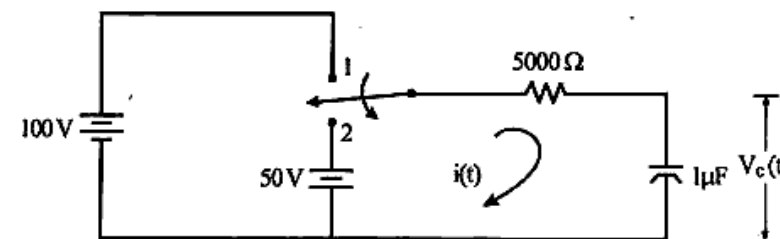
OR

For the circuit given below determine the load impedance Z_L that maximizes the average power drawn from the circuit. Also determine the value of maximum power.



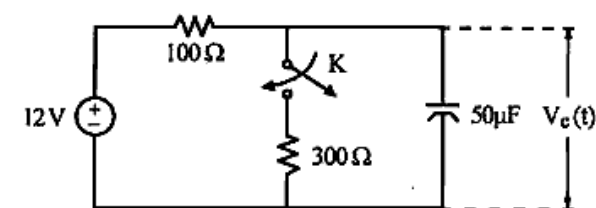
UNIT - III

- Discuss the initial conditions of voltage and current in inductor and capacitor.
- Explain the effect of the time constant on the current $i(t)$ in a RL series circuit.
- Obtain the RMS voltage of three sources connected in series: $V_1 = 50 \sin \omega t$; $V_2 = 80 \sin (\omega t + 50^\circ)$; $V_3 = 100 \sin (\omega t - 60^\circ)$
- For the circuit given below derive the expression for $i(t)$ and $V_C(t)$ when the switch is moved from position 1 to 2 at $t = 0$.



OR

For the circuit given below initially switch is kept open for a long time and closed at $t = 0$. Find the expression for $V_C(t)$ and sketch it against t .



UNIT - IV

- Define and explain the unit impulse function.
- Write short note on half wave symmetry of a function $f(t)$.
- Explain trigonometric form of a Fourier series.
- Obtain the Fourier transform of a unit step function.

OR