

Total No. of Printed Pages:5

SUBJECT CODE NO:- H-174
FACULTY OF SCIENCE AND TECHNOLOGY
S.E. (EEP/EE/EEE)
Network Analysis
(REVISED)

[Time: Three Hours]

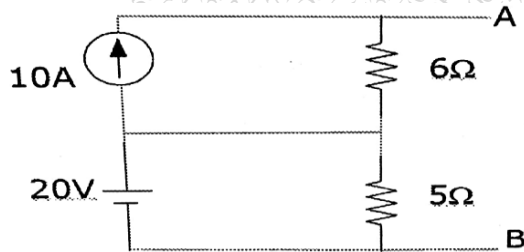
[Max.Marks: 80]

Please check whether you have got the right question paper.

- N.B
1. Use & assume suitable data if required.
 2. Q.No.1 from section A & Q.No.6 Section B are compulsory.
 3. Solve any two questions from the remaining questions in each section A & B.

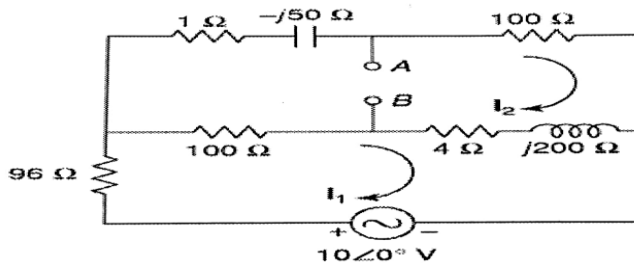
Section A

- Q.1 Solve any five: 10
- a) Define Mutual Inductance.
 - b) Explain Unilateral & Bilateral Elements.
 - c) State the Thevenin's Theorem.
 - d) What is dependent sources? Explain Their Types.
 - e) Define Unit Step Function & Delayed Step Function.
 - f) Give the principal of Duality.
 - g) Replace the circuit into single current source and resistor.

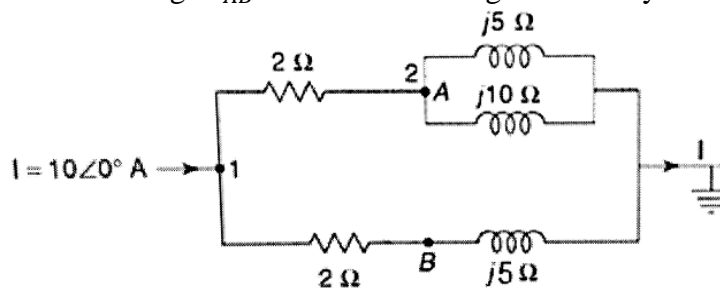


- h) Define convolution integral.

- Q.2 a) Explain the concept of Super Mesh & Super Node along with an example. 05
- b) Find the voltage V_{AB} using Mesh analysis. 05

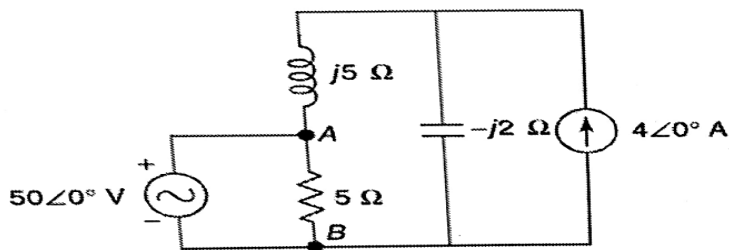


c) Find the voltage V_{AB} in the circuit using nodal analysis. 05

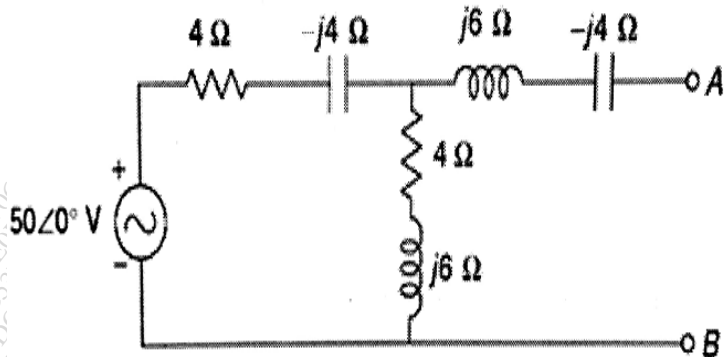


Q.3 a) State & explain Reciprocity Theorem in details along with example. 05

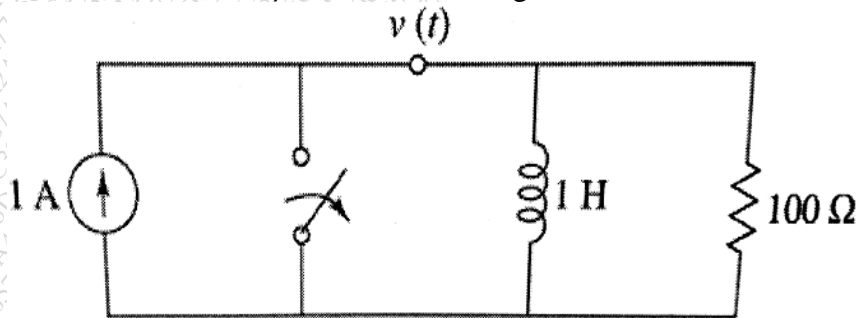
b) Determine the potential difference between A & B using superposition theorem. 05



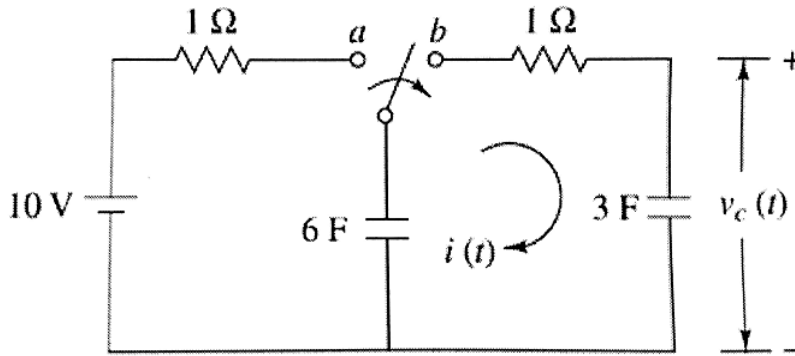
c) Obtain Thevenin's Equivalent circuit for terminal A & B. 05



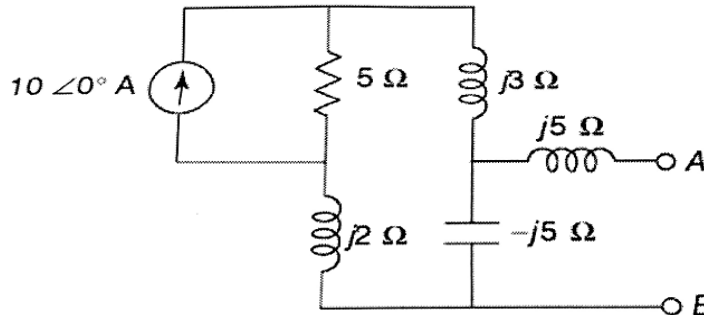
Q.4 a) Find v , dv/dt & d^2v/dt^2 for following circuit. 07



b) In the given circuit switch is moved from a to b at $t=0$; determine $i(t)$ 08



Q.5 a) State Norton's theorem and find its equivalent network for given circuit. 07



b) Explain Source transformation in detail with example. 04

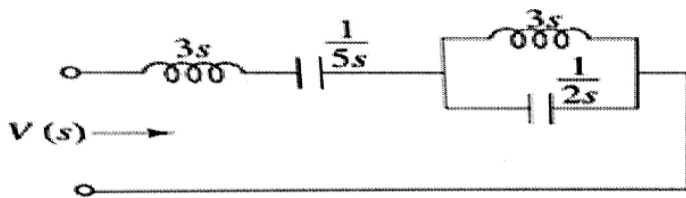
c) Explain Source shifting in detail along with example. 04

Section B

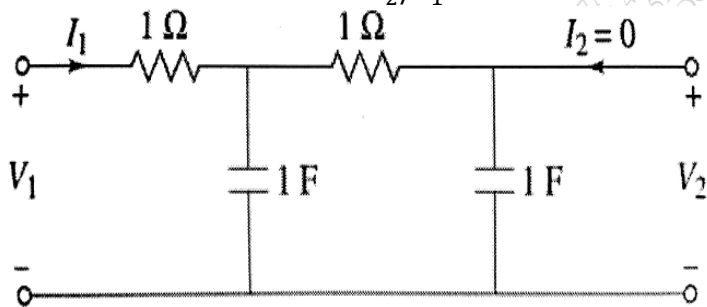
Q.6 Solve any five: 10

- What is two port network?
- What is reactive power? Give its physical significance.
- Write Y parameters of two port network.
- Define Fourier coefficients.
- What is stability of active network?
- Draw T network & Ladder Network.
- What are the application of Fourier transform.
- Explain restrictions on Pole and Zero Location for transfer functions.

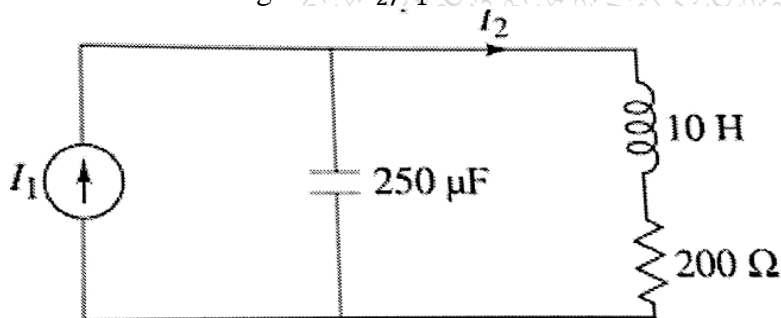
Q.7 a) Find driving point admittance function of the network. 05



- b) Explain the necessary conditions for transfer functions. 05
 c) Determine Transfer Function V_2/V_1 05

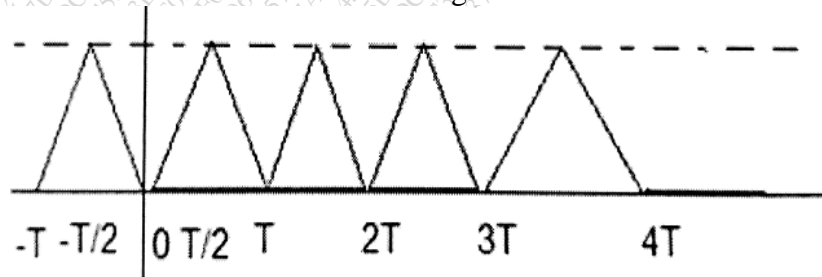


- Q.8 a) Draw Pole zero diagram of I_2/I_1 . 05

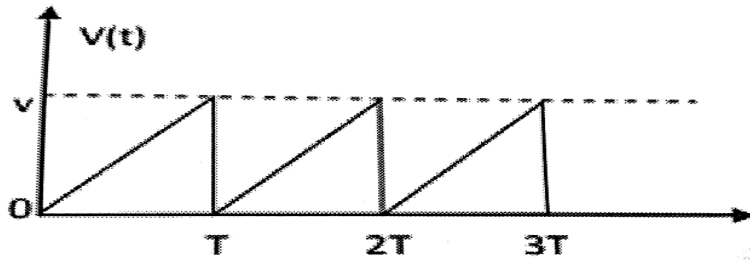


- b) State the limitation on pole & zero location in transfer function of two port network. 05
 c) Explain Insertion Loss in detail 05

- Q.9 a) Find Fourier Coefficient of following waveform. 05



- b) Find the Laplace transform of the given waveform. 05



c) Find Inverse Laplace transform of given function. 05

Q.10

a) State different types of interconnection of two port network. And explain any one in detail. 05

b) Derive the complete form representation of Fourier series. 05

c) Find the Fourier series for square wave defined as $f(t) = +A \quad 0 < t < T/2$
 $= -A \quad T/2 < t < T$ 05