

B.TECH SEM – IV (2007 COURSE) (ELECTRICAL ENGG.) :

SUMMER - 2018

SUBJECT: NETWORK ANALYSIS

Day: **Thursday**
Date: **07/06/2018**

Time: **10.00 AM TO 01.00 PM**
Max Marks. 80

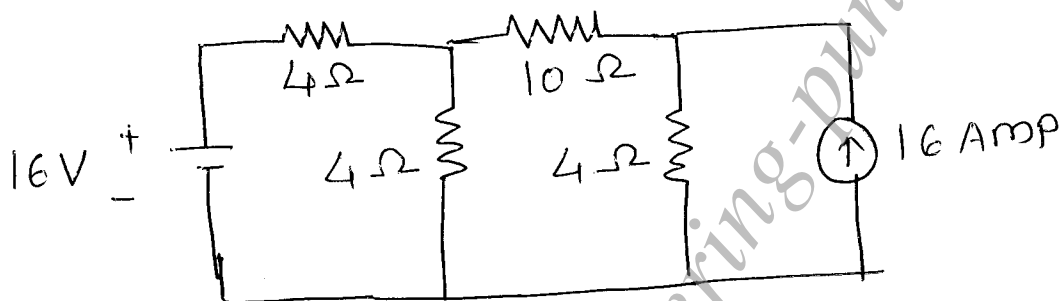
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N.B.

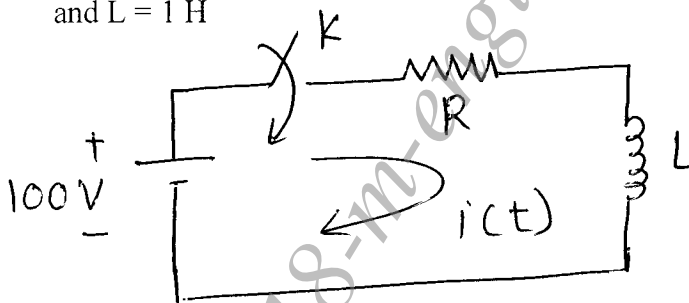
- 1) **Q. No. 1 & Q. No. 5 is COMPULSORY.** Out of remaining questions solve any **TWO** in each.
- 2) Figures to the right indicate **FULL** marks.
- 3) Both sections should be written in **SEPARATE** answer books.

SECTION – I

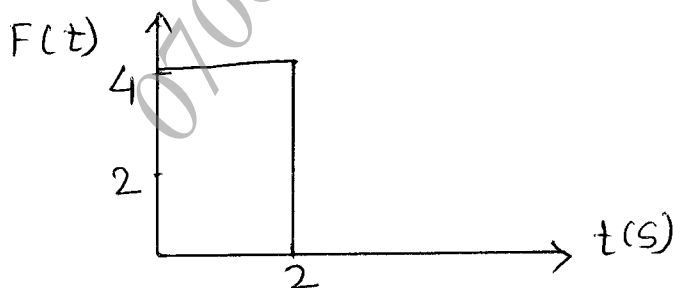
Q.1 a) Find the current through $10\ \Omega$ resistance in the given network by using **(05)** superposition theorem



b) In the network shown below, at $t = 0$, switch 'k' is closed. Find the values of I , $\frac{di}{dt}$ and $\frac{d^2i}{dt^2}$ at $t = 0^+$ for element values as follows; $V = 100\text{V}$, $R = 1000\ \Omega$ and $L = 1\ \text{H}$ **(05)**

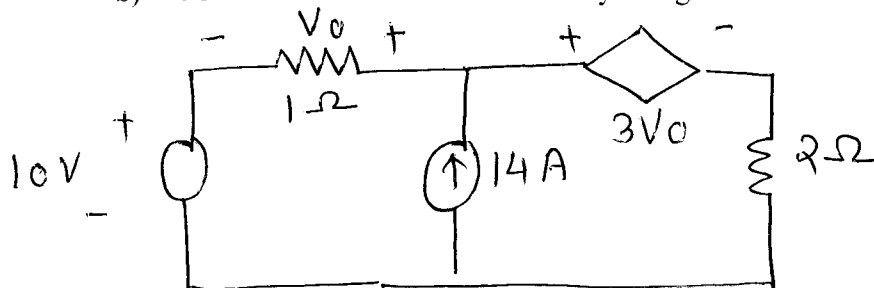


c) Find Laplace transform of following waveform **(04)**



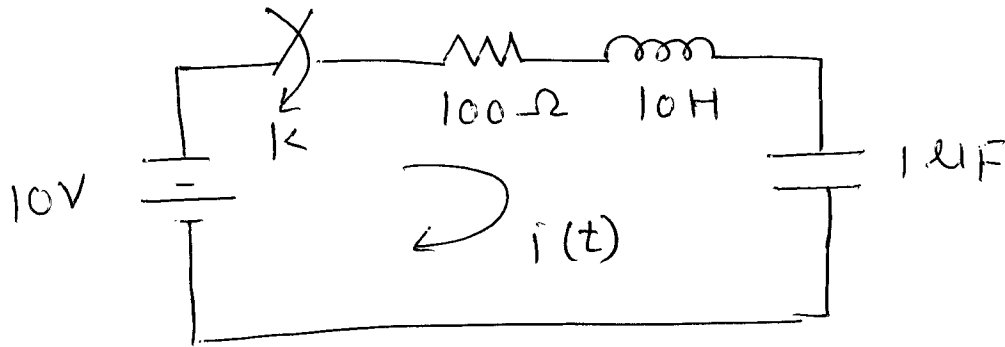
Q.2 a) State and explain Superposition's Theorem **(06)**

b) Obtain current in $2\ \Omega$ resistance by using Thevenin's theorem **(07)**

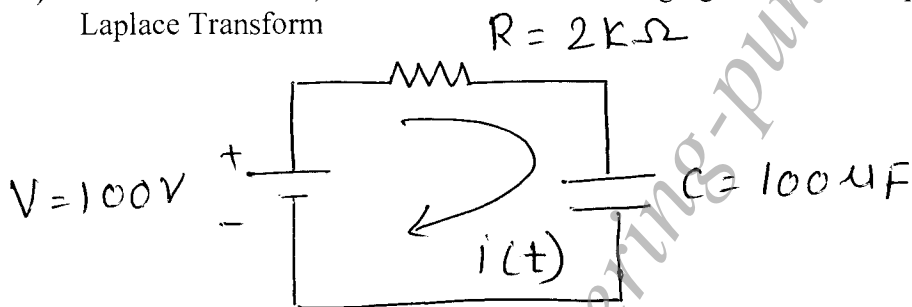


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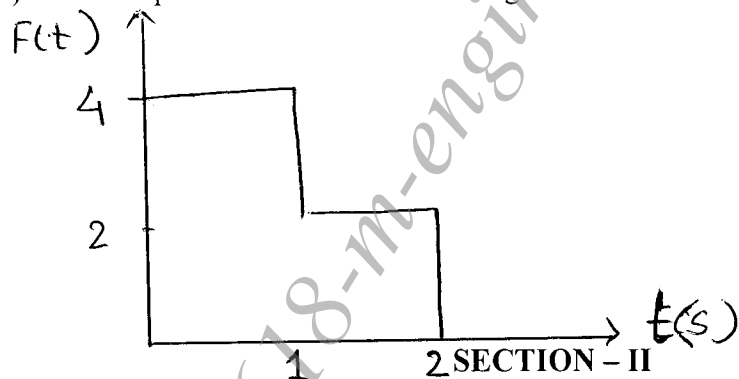
- Q.3** a) In the circuit, Resistance R and inductance L is connected in series across AC (06)
supply voltage V . Obtain expression for resulting Current $i(t)$ when switch is
closed at $t = 0$.
b) In the circuit shown below, find $di(0^+)/dt$ when switch is closed at time $t = 0$ (07)



- Q.4** a) For circuit below, calculate the initial charging current of capacitor using (06)
Laplace Transform

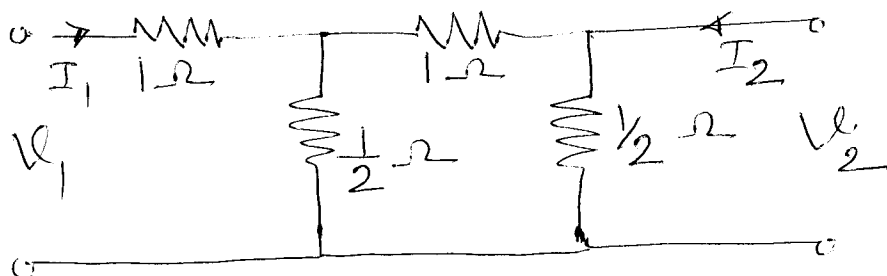


- b) Find Laplace transform of following waveform (07)



- Q.5** a) Express impedance parameters in terms of Transmission parameters. (05)
b) Define (05)
i) Driving point impedance
ii) Transfer admittance
c) What is the Fourier transform of an Even symmetric function? (04)

- Q.6** a) Find Y & Z parameters for the network shown (07)

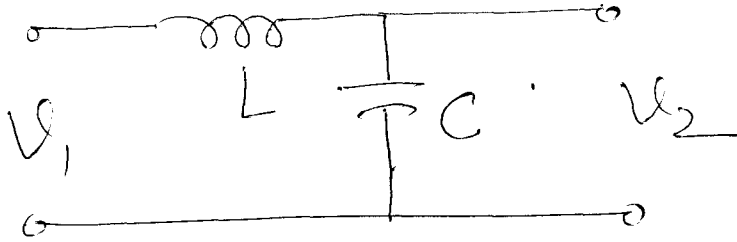


- b) Derive the condition of Reciprocity and symmetry in Impedance parameters. (06)
Q.7 a) What is the significance of poles and zeros of a transfer function? (06)

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b) Find the voltage ratio transfer function

(07)



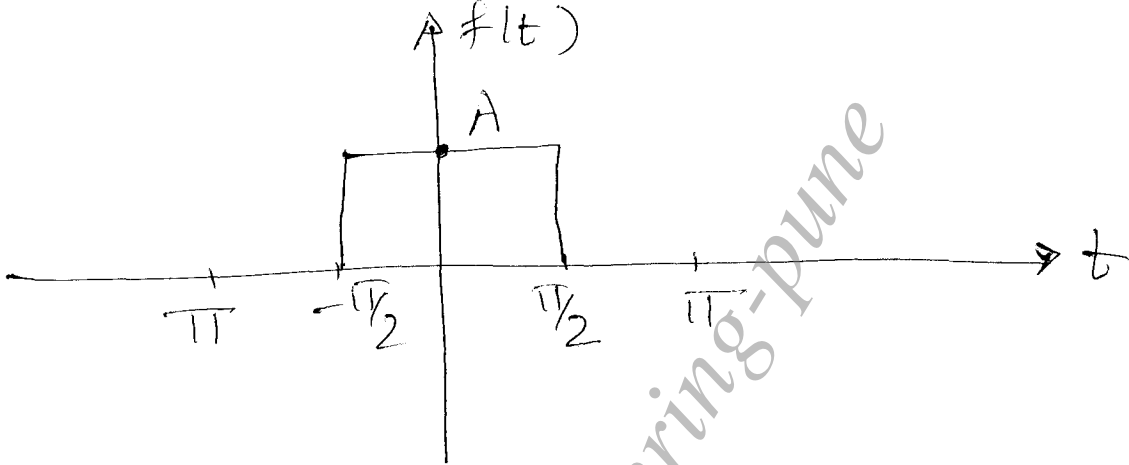
Q.8 a) Define

(07)

- i) Even function Symmetry
- ii) Odd function Symmetry
- iii) Half wave symmetry

b) Determine the Fourier series of the waveform shown.

(06)



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