Exam No._____

GANPAT UNIVERSITY

B. Tech. Semester III Electronics and Communication Engineering

Regular / Remedial Examination Nov – Dec 2016

2EC303 Network Analysis

Time: 3 Hours **Total Marks:** 60

Instructions:

1. Attempt all questions.
2. Answers to the two sections must be written in separate answer books.
3. Figures to the right indicate full marks.
4. Assume suitable data, if necessary.

SECTION: I

Que:1 (A) In the network of below Fig. 1.1, find V_2 which result in zero current through 4 Ω resistor. **[5]**

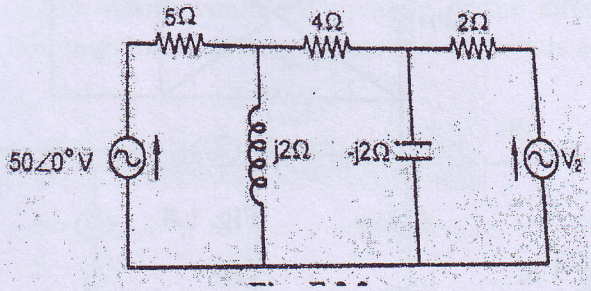

Fig. 1.1

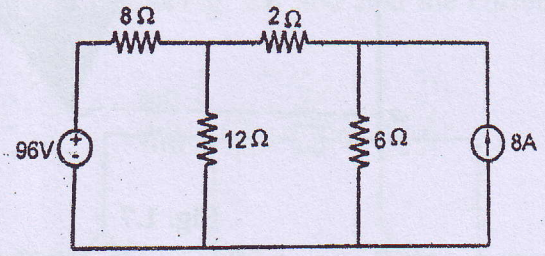

Fig. 1.2

(B) Determine the voltage across 6Ω resister in the network of above Fig. 1.2 using nodal analysis. **[5]**

OR

Que:1 (A) The network of Fig. 1.3 contains two voltage sources V_1 and V_2. With V1= 30∠0°V. Determine V2 such that the current in the (2+ j3) Ω impedance is zero. **[5]**

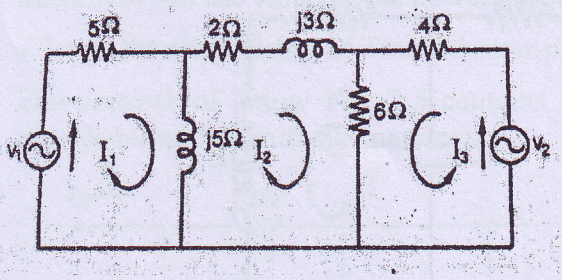

Fig. 1.3

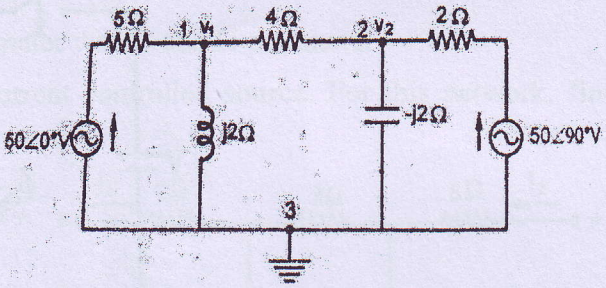

Fig. 1.4

(B) In the network of above Fig. 1.4, determine the voltage of nodes 1 and 2 with respect to the selected reference. **[5]**

Que:2 (A) For the network shown in below Fig. 1.5 determine the numerical value of the branch current i_1. All sources in the network are time invariant. **[5]**

(B) Find dual of network shown in above Fig.1.6. **[5]**

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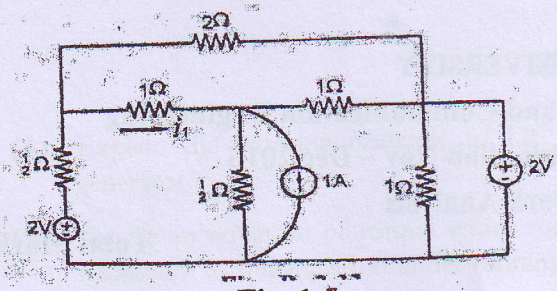

Fig. 1.5

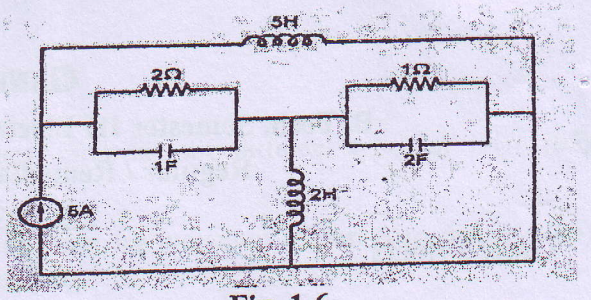

Fig. 1.6

OR

Que:2 (A) The waveform is shown in below Fig. 1.7 is non-recurring. Write an equation for the waveform V (t). Also obtain the Laplace transform V(s). **[5]**

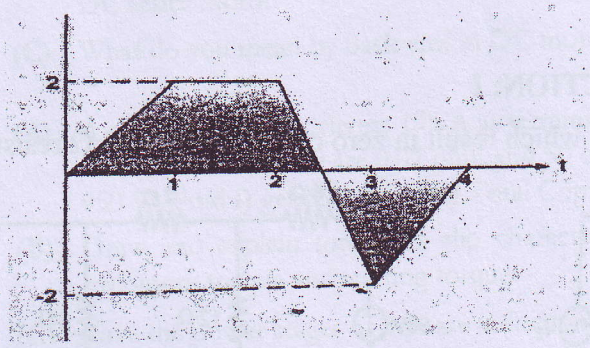

Fig. 1.7

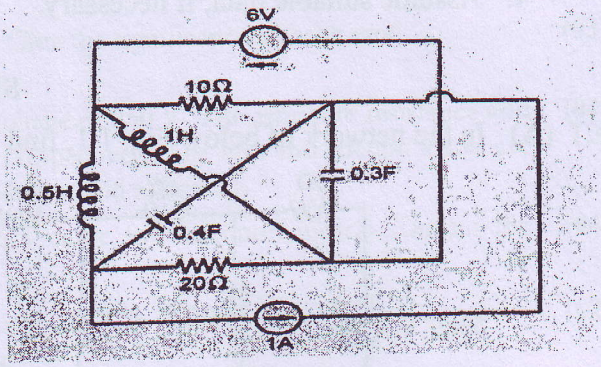

Fig. 1.8

(B) Find dual of network shown in above Fig. 1.8. **[5]**

Que:3 (A) In the network shown in below Fig. 1.9 assuming all initial condition as zero, find $i_1, i_2, \frac{di_1}{dt}$, $\frac{di_2}{dt}$, $\frac{d^2i_1}{dt^2}$ and $\frac{d^2i_2}{dt^2}$ at $t=0^+$. **[5]**

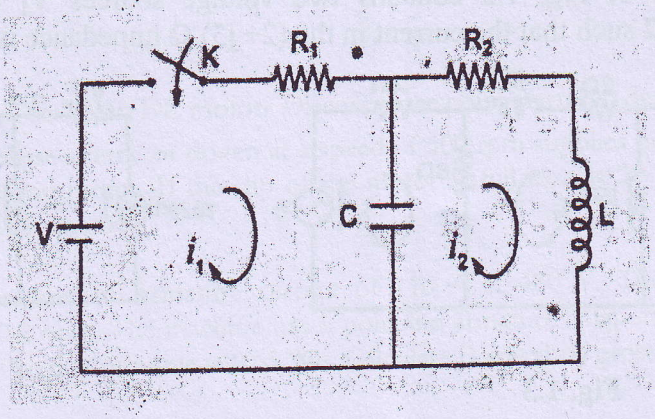

Fig. 1.9

(B) Show the status of R,L and C at t=0+ and t=∞ time. **[3]**

(C) Define Bilateral and Unilateral. **[2]**

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SECTION-II

Que:4 (A) Find the current in 5 Ω resistor for the circuit shown in below Fig. 2.1 using Norton's theorem. [5]

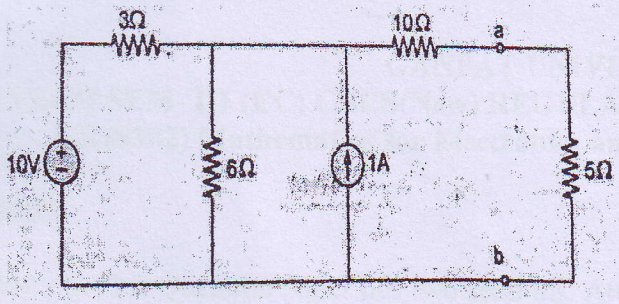

Fig. 2.1

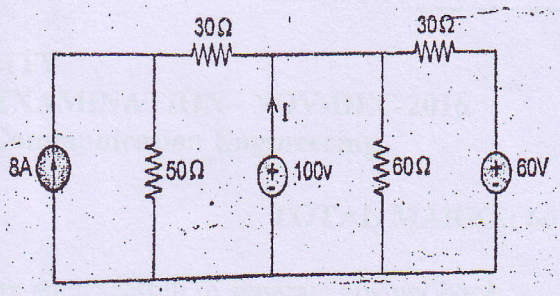

Fig. 2.2

(B) Determine the current i through 100V source in the network of above Fig. 2.2 using the super position theorem. [5]

OR

Que:4 (A) Draw the thevenin's equivalent of the circuit shown in below Fig. 2.3 and find the current through load resistance (between terminals a-b). [5]

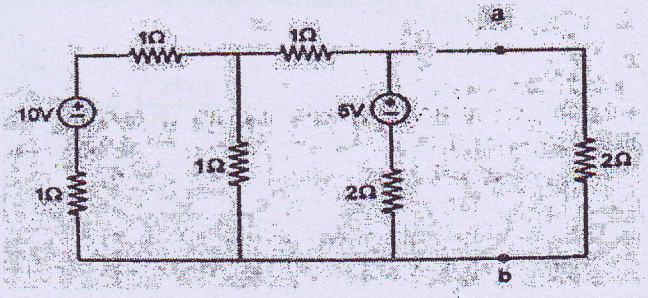

Fig. 2.3

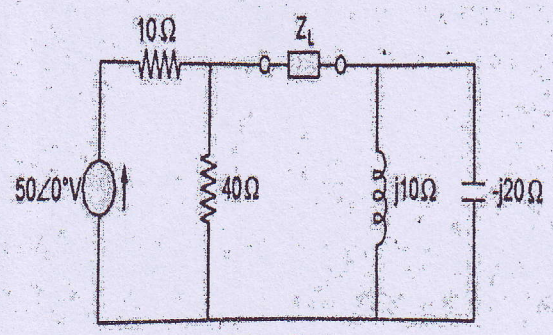

Fig. 2.4

(B) In the circuit shown in above Fig. 2.4, determine Z_L, so that the power absorbed by it is maximum and the value of the power absorbed. [5]

Que:5 (A) What is the relationship of Transmission-parameter with Z and H parameter? [5]

(B) The network of below Fig. 2.5 contains a current controlled source. For this network, find impedance and Admittance parameter. [5]

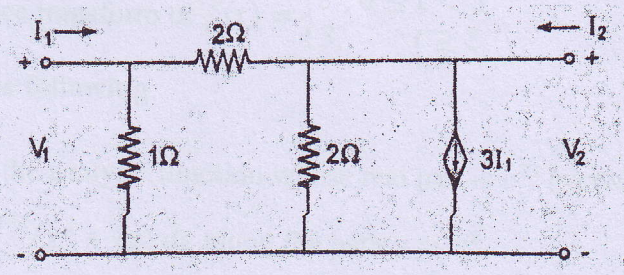

Fig. 2.5

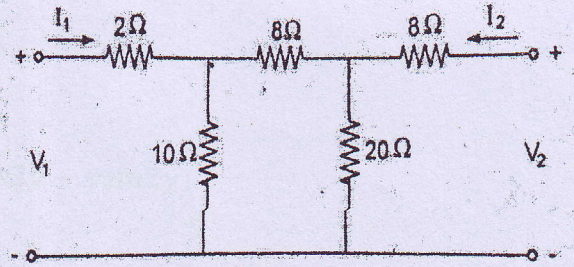

Fig. 2.6

OR

Que:5 (A) Find the transmission parameters of the two port network of above Fig. 2.6. [5]

(B) Explain Y Parameter. [5]

Que:6 (A) Design a high pass filter having a cut-off frequency of 1KHz with load resistance of 600 Ω. [5]

(B) Design a T-pad attenuator to give an attenuator of 60dB and to work in a line of 500 Ω Impedance. [5]

END OF PAPER