SEAT NO: _____

GANPAT UNIVERSITY

B. TECH. SEMESTER III ELECTRONICS & COMMUNICATION ENGINEERING
REGULAR EXAMINATION, NOV-DEC 2011

2EC305 NETWORK ANALYSIS

Time: 3 H0URS. **Total Marks: 70**

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. Assume suitable data, if necessary.

SECTION-I

1	(A)	Derive the general solution for second order equation(Internal excitation)	4
	(B)	Determine the mesh Currents i_1,i_2 and i_3 in a network of fig.(1)	6
	(C)	In the Fig.(2) Obtain the voltage output across R_L	2
		OR	
1	(A)	In the network of fig. (3), a steady state is reached with the switch k open. At t=0, the switch k is closed. Find i(t)(particular solution)	6
	(B)	Explain the classification of filter.	4
	(C)	Find the power dissipated in the 100Ω resistor and find the voltage rating of the dependent Source in fig.(4)	2
2	(A)	Explain Constant k-High pass filter with the attenuation band and Characteristic Impedance	6
	(B)	Find the loop Currents i_1, i_2 and $i_{3\ in}$ the network of fig. (5)	5
		OR	
2	(A)	Determine the voltage at each node for the circuit shown in Fig.(6)	5
	(B)	Explain and draw equivalent circuit for Resistor, inductor and capacitor In term of the initial & final Condition	4
	(C)	V-I relationship of R, L and C element	2
3	(A)	Explain Unilateral and Bilateral element with an example.	4
	(B)	Explain the tree branch voltage. Find for Given network in fig.(7)	6
	(C)	What is the Source transformation with an example?	2

SECTION-II

4	(A)	State and prove maximum power transform theorem.	6
	(B)	State norton's theorem. Find the current in 5Ω resistor using Norton theorem for fig. (1)	6
		OR	
4	(A)	State thevenin theorem. Find V_{th} and R_{th} for following network in fig. (2)	6
	(B)	Show validity of reciprocity theorem in fig. (3) and (4)	6
5	(A)	Determine i_2 (t) using Laplace transformation in the fig. (5), If switch 'K' is closed at time t=0.	6
	(B)	Obtain V(S) of the given waveform in fig. (6)	5
		OR	

5 (A) State relation between u(t), r(t) and δ(t), and prove it. 4

(B) Obtain Y-parameters in terms of Z-parameters. 5

(C) Define inverse H-parameters and give equation of it. 2

6 (A) For the resistive two port network of fig. (7). Determine the numerical values for G_{12}, α_{12}, Z_{12}, Y_{12}. 6

(B) Prove the conditions for the network to be reciprocal and symmetry using Z-parameters. 4

(C) Define poles and zeros of network function. 2

SECTION-I

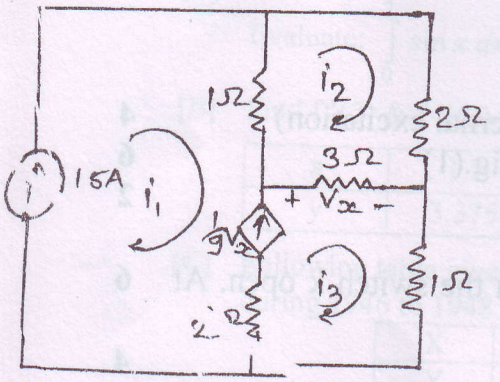


fig. (1)

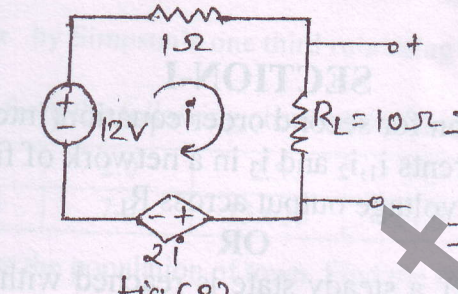


fig (2)

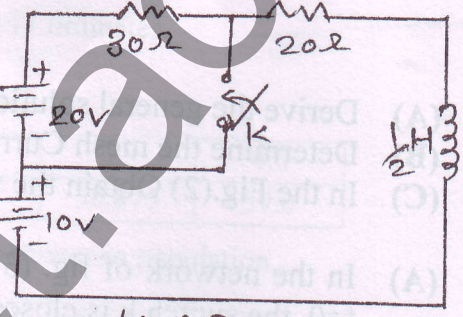


fig (3)

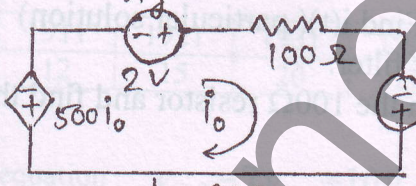


fig (4)

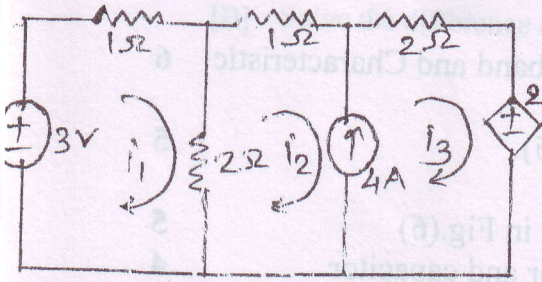


fig (5)

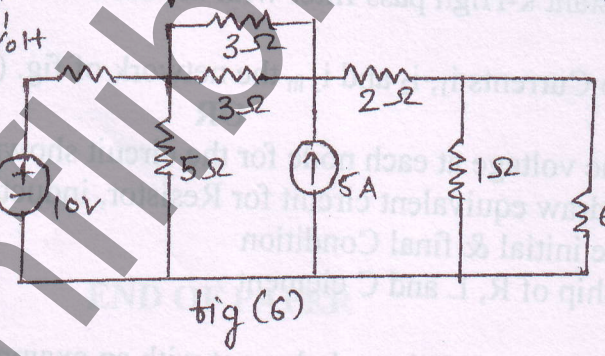


fig (6)

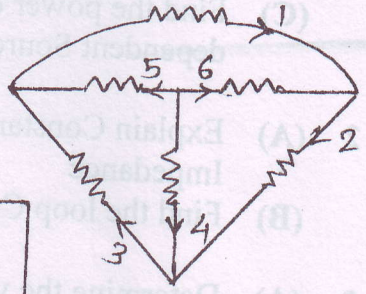


fig (7)

SECTION II

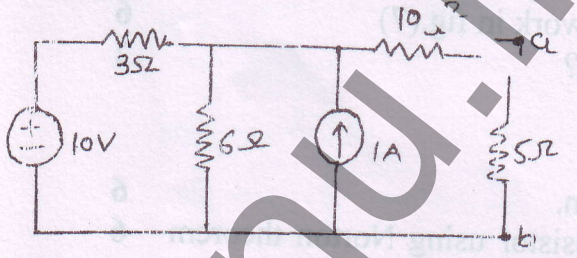
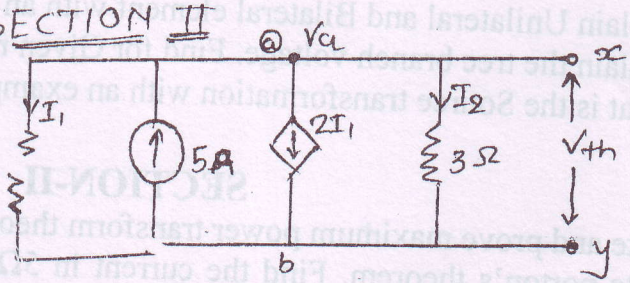


fig. (1)



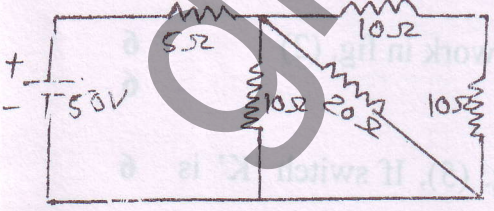


fig (3)

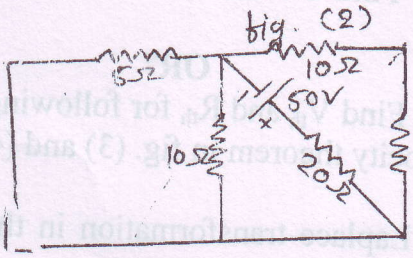


fig. (2)

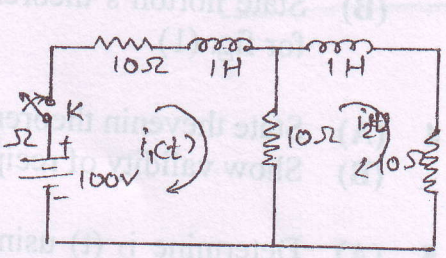
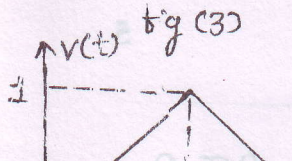


fig (5)



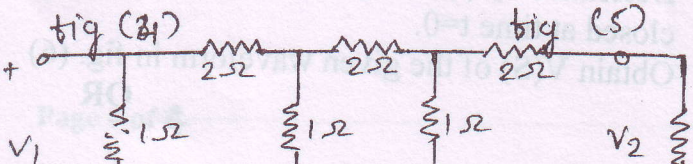


fig (4)