

GANPAT UNIVERSITY

B. TECH. SEMESTER III ELECTRONICS & COMMUNICATION ENGINEERING
REGULAR EXAMINATION, NOV-DEC 2012

2EC305 NETWORK ANALYSIS

Time: 3 HOURS.

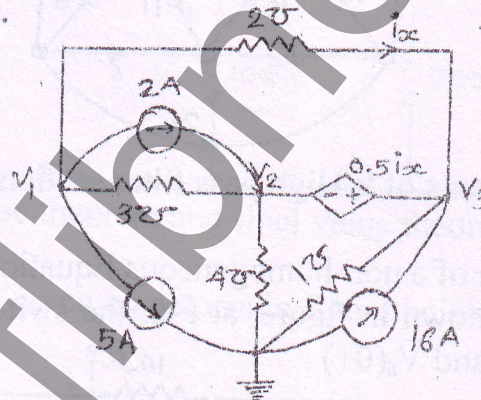
TOTAL Marks: 70

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.

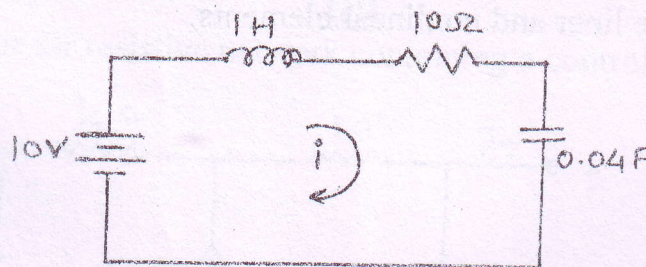
SECTION-I

- Q.1 (A) What is the Source transformation and give the Network Simplification 6
techniques with an example.
- (B) Determine the node voltage V_1 , V_2 and V_3 in a network of Figure using 6
Supernode Concept.

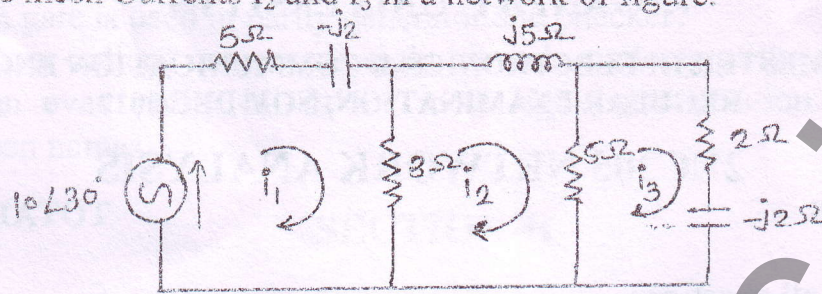


OR

- Q.1 (A) Explain the classification of Different type of Active filter with necessary 6
Figure.
- (B) In the circuit of figure, a D.C Voltage of 10v suddenly applied to a series 6
circuit consisting of RLC Component .Obtain the Particular Solution for
current $i(t)$ in the Circuit.



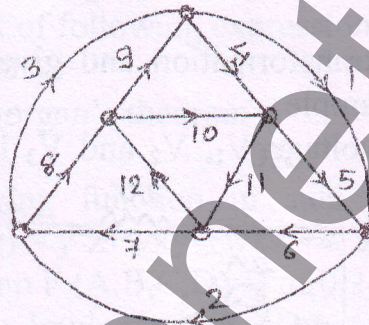
Q.2 (A) Find the mesh Currents I_2 and I_3 in a network of figure.



(B) Define graph, tree, link and loop and tree branch voltage with Example. 5

OR

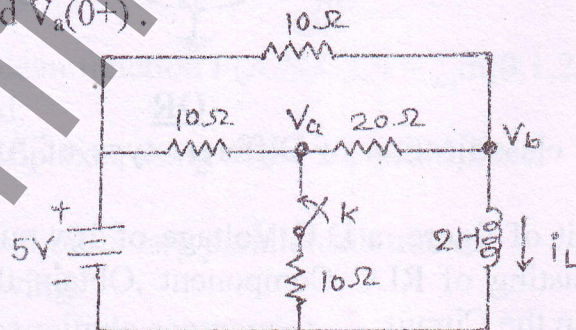
Q.2 (A) In the given network Figure obtain values of branches currents & voltages by cut-set schedule. 6



(B) Explain the elements of k-High pass filter section. 5

Q.3 (A) Find the Solution of a non-homogeneous Equation Using Integrating factor. 4

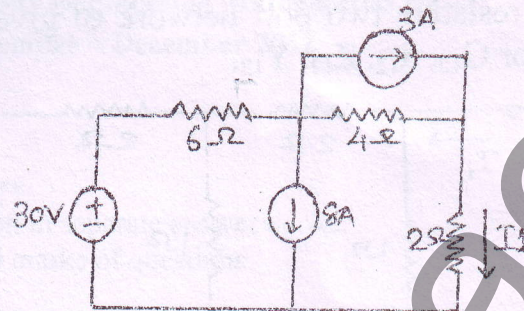
(B) In the network shown in figure, at $t=0$, the switch is Closed, determine the values of $V_a(0^-)$ and $V_a(0^+)$. 6



(C) Define the liner and nonlinear elements. 2

SECTION-II

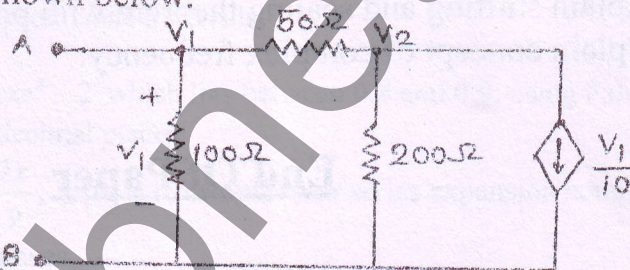
Q.4 (A) State Superposition theorem. Determine value of I_1 using it in a network of figure given below. 6



(B) State and prove maximum power transfer theorem for DC circuits. 6

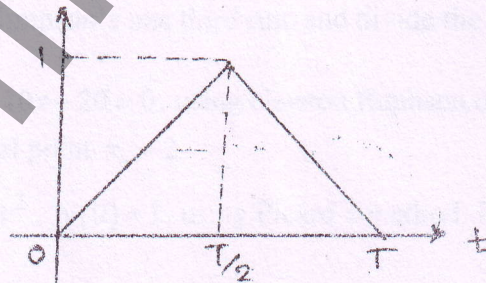
OR

Q.4 (A) State Norton's theorem. Find Norton's equivalent network across the terminal AB of the network shown below. 6



(B) Explain initial value theorem and final value theorem. 6

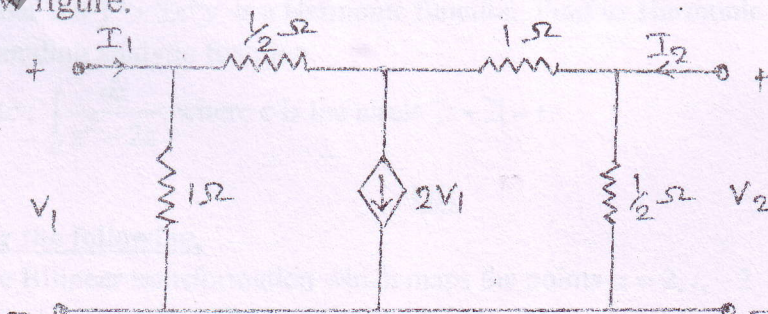
Q.5 (A) Obtain $V(S)$ of the given waveform in figure below. 6



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

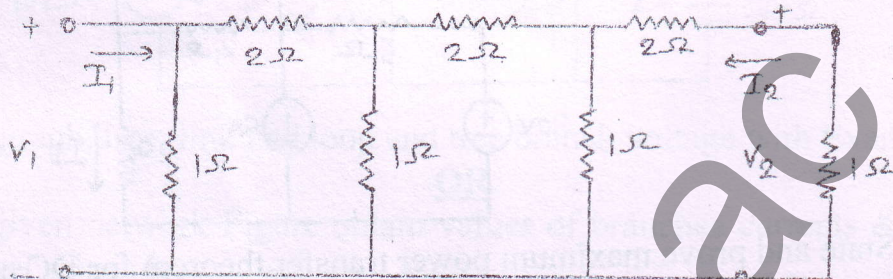
OR

Q.5 (A) Find z-parameter for resistive network containing a controlled source as in below figure. 6



Seat No. _____

- (B) For the resistive two port network of given figure, determine the numerical values for G_{12} , α_{12} , Z_{12} , Y_{12} . 5



- Q.6 (A) Define laplace transformation and inverse laplace transformation. Derive laplace transformation of unit step and exponential function 6
(B) Explain shifting and scaling theorem with proper example. 4
(C) Explain concept of complex frequency. 2

End Of Paper