GANPAT UNIVERSITY

B. TECH. SEMESTER III ELECTRONICS & COMMUNICATION ENGINEERING

CBCS NEW REGULAR EXAMINATION, NOV- DEC 2015

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. **Assume suitable data, if necessary.**

SECTION-I

Q.1	(A)	State and prove maximum power transfer theorem for DC circuits.	5
	(B)	Use Superposition theorem to find the value of 'V' across 20Ω resistor in the network of figure 1.	5

OR

Q.1	(A)	State and prove Norton theorem with necessary example.	5
	(B)	State reciprocity theorem and by applying the reciprocity find the current through 1Ω Resistor in the shown figure 2	5
Q.2	(A)	Obtain Y parameter in terms of Z-Parameters	5
	(B)	Describe about Attenuators. Design a Π type attenuator to give 20 dB attenuation and to have a characteristic impedance of 100 Ω.	5

OR

Q.2	(A)	Describe about Attenuators. Design a T type attenuator to give 20 dB attenuation and to have a characteristic impedance of 100 Ω.	5
	(B)	What do you mean by Equalizer circuits? In detail explain about series equalizer circuit.	5
Q.3	(A)	List out various two port parameters for circuit analysis purpose. Discuss the concept of ABCD parameters for 2 stage two port cascaded circuit.	5
	(B)	What is filter? Discuss about classification of filters in detail.	5

SECTION-II

Q.4 (A) Find the currents through the all resistors shown in figure 3 using mesh analysis. 5

(B) Explain the link Current and the tie-set schedule table & equation with an example. 5

OR

Q.4 (A) Use nodal analysis to determine the current I in the network shown figure 4 5

(B) Discuss about the source transformation and different network simplification techniques. 5

Q.5 (A) Explain and obtain Laplace transform of unit step function and shifted unit step function 5

(B) Obtain f(S) of the given triangular waveform f(t) in figure 5. 5

OR

Q.5 (A) Find the Solution of a non-homogeneous Equation Using Integrating factor 5

(B) In the network of the figure 6, the switch k is opened at t=0. Find the values of v, $\frac{dv}{dt}$ 5

, $\frac{d^2v}{dt^2}$ at t=0+. if I=10A,R=10Ω L=1H.

Q.6 (A) Discuss behavior of Resistor, inductor and capacitor in initial & final Condition with necessary circuit diagram. 5

(B) Derive the general solution for second order equation using Internal excitation 5

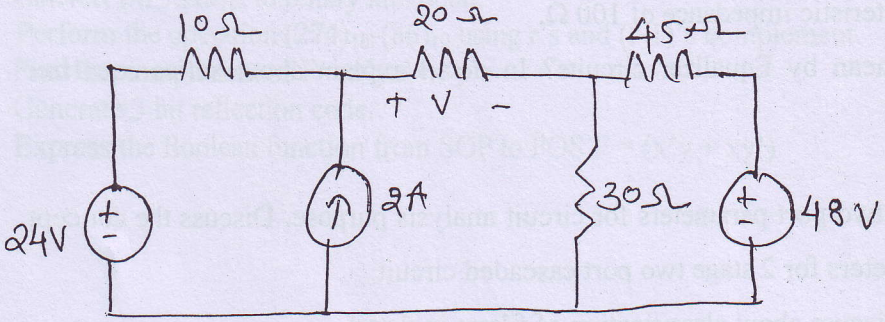

Figure-1

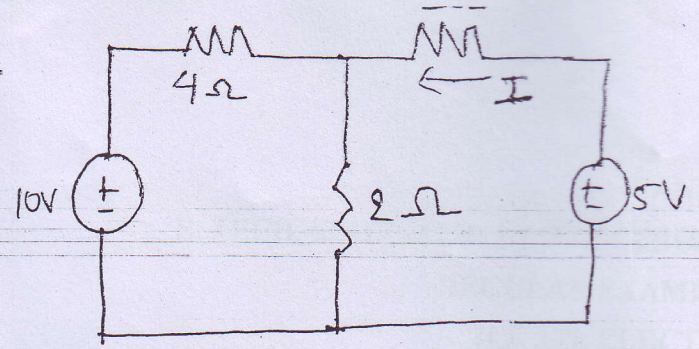

Figure-2

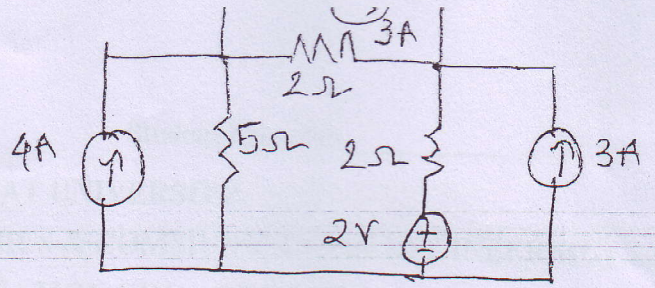

Figure-3

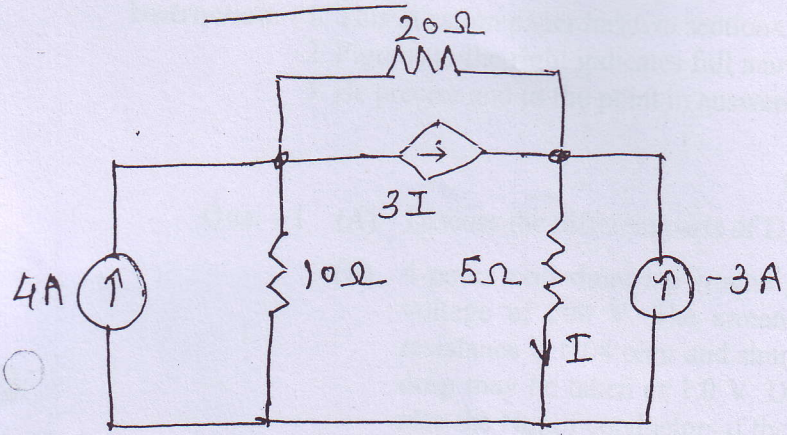

Figure-4

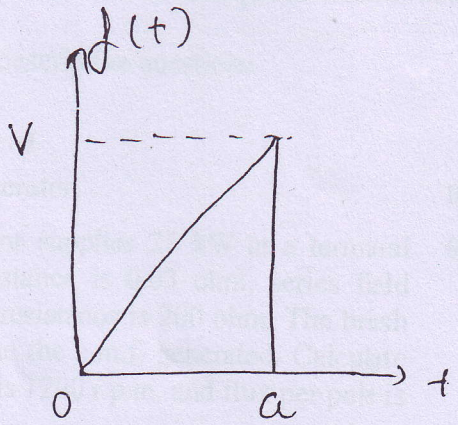

Figure-5

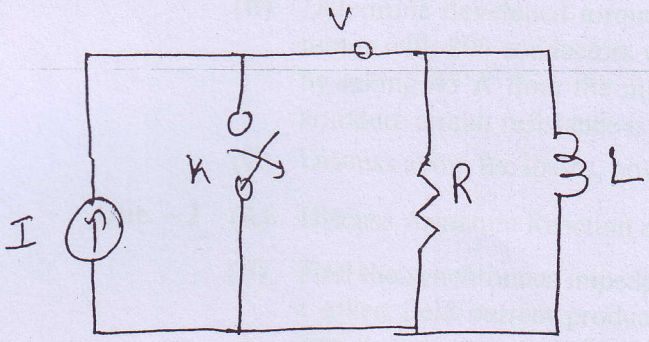

Figure-6

End of paper