R18

Code No: 153BH

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B.Tech II Year I Semester Examinations, March - 2021

NETWORK ANALYSIS AND TRANSMISSION LINES

(Electronics and Communication Engineering)

Time: 3 hours **Max. Marks: 75**

Answer any five questions

All questions carry equal marks

1.a) What is a cutset? How to obtain the basic cutset matrix?

b) In the circuit shown in figure 1, $L_1 = L_2 = 5\ \mu H$ and $M = 1\ \mu H$. Compute v_1 and v_2, If $i_1 = 3\cos 150t\ mA$, $i_2 = 4\sin 150t\ mA$ [7+8]

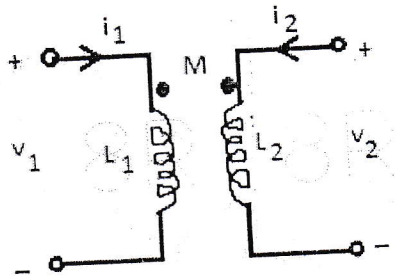

Figure: 1

2.a) What is dot convention? Why do we use it?

b) Using basic tieset matrix, find current 'i' in the circuit shown in figure 2. [7+8]

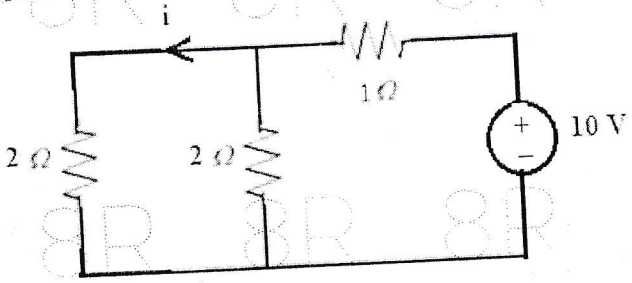

Figure: 2

3.a) Draw the impedance and current curves for the series RLC resonant circuit. Explain about it?

b) An inductive circuit draws 5 A and 500 W from a 200-V, 50 Hz AC supply, determine (i) the impedance (ii) the power factor (iii) the reactive power (iv) the apparent power. [7+8]

4.a) Draw the step response of a second order system for critically damped case and Explain.

b) In the circuit shown in figure 3, find current ' i' at t = 3 sec. [8+7]

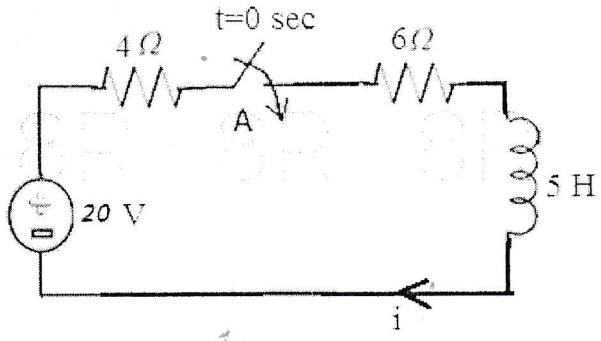

Figure: 3

5.a) Write short notes on driving point and transfer functions.

b) For the network shown in figure 4, determine impedance parameters. [7+8]

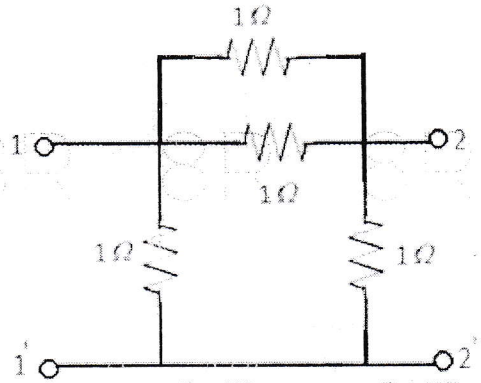

Figure: 4

6.a) Draw the structure of standard T section and explain in detail.

b) For the network figure 5, determine hybrid parameters. [7+8]

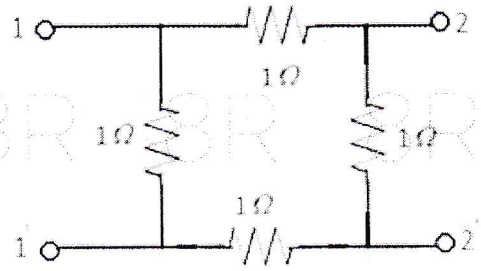

Figure: 5

7.a) Define loading. Explain different types of loading.

b) Discuss in detail about phase and group velocities. [7+8]

8.a) What is single stub matching? Explain in detail.

b) Explain about input impedance relations for various cases of transmission lines. [7+8]

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