



MARRI LAXMAN REDDY
INSTITUTE OF TECHNOLOGY AND MANAGEMENT

(AN AUTONOMOUS INSTITUTION)
 (Approved by AICTE, New Delhi & Affiliated to JNTUH, Hyderabad)

Accredited by NBA and NAAC with 'A' Grade & Recognized Under Section 2(f) & 12(B) of the UGC act, 1956

II B.Tech I Sem Supply End Examination, October 2021
NETWORK ANALYSIS AND TRANSMISSION LINES
 (ECE)

Time: 3 Hours.

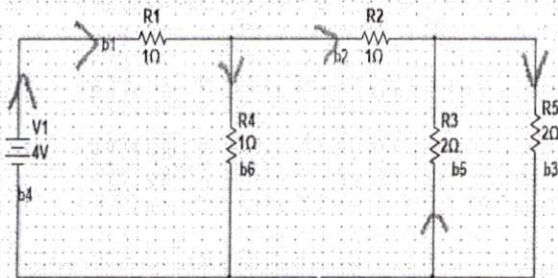
Max. Marks: 70

Note: 1. Answer any FIVE questions.

2. Each question carries 14 marks and may have a, b as sub questions.

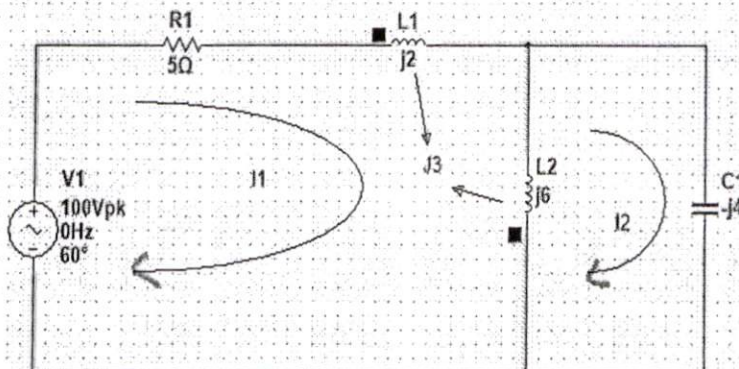
- 1 a) What is the tie-set and also find loop currents from the following circuit using Tie-set matrix for given a tree (4,5,6)

7M CO1 BL3



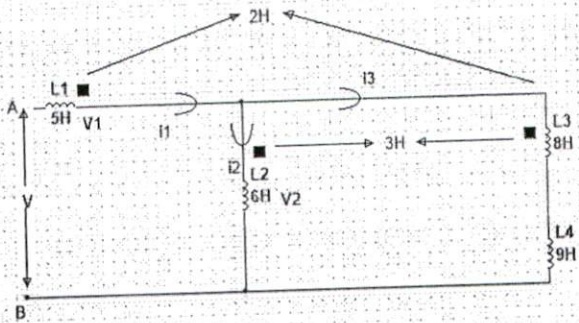
- b) Classify the magnetic coupled circuits with neat sketches? And also evaluate the currents (I_1, I_2) in the given Magnetically coupled circuits?

7M CO1 BL5



2 a)

Derive the effective inductance of the circuit shown in fig

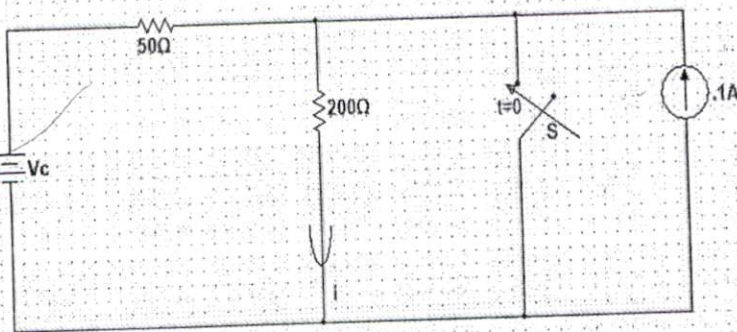


b) Derive and draw the response of series RLC circuit for step input.

7M C01 BL6

3 a) Determine the $V_c(0^+)$, $i(0^+)$, $V_c(2\text{msec})$ for long time switch is opened and it is closed at $t=0$.

7M C02 BL3

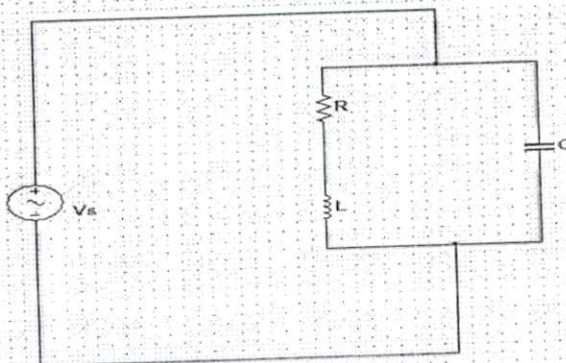


b) Define the Quality factor, give the relationship between the resonance frequency and quality factor

7M C02 BL1

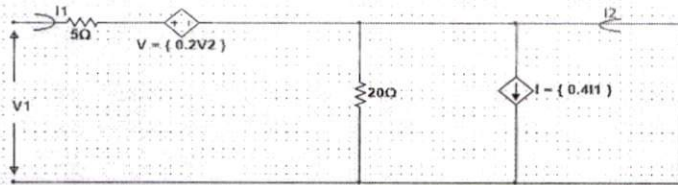
4 a) Determine the resonance frequency in given circuit?

7M C03 BL3



b) Find out the Y-parameters for given network

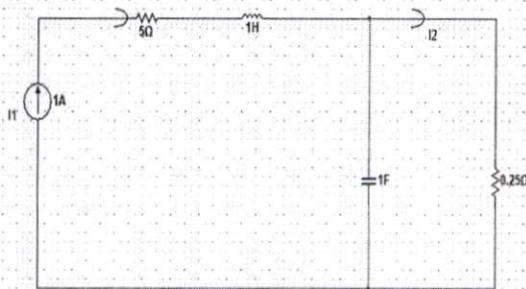
7M C03 BL3



- 5 a) A series resonance circuit has a BW of 100hz & contain 20mh inductance and 2uf capacitance. Determine the f_0 , Q, Z_{in} (at resonance), frequency Deviation, F2 frequency?
- b) Find out the Pole-Zero points of the driving point and transfer impedance of n/w shown

7M C02 BL3

7M C03 BL3



- 6 a) List out the distortions in Transmission lines and derive the condition for distortion less in transmission lines

7M C04 BL6

- b) Determine the approximation values of Z_0 , α , β and V_p of giving of 1v Generator, 1khz supply power to a 100km long long line terminated Z_0

7M C04 BL3

$R=10.4\text{ohm/km}$, $G=0.8 \times 10^6 \text{mho/km}$, $L=0.00367\text{h/km}$,
 $c=0.00835 \times 10^{-6} \text{f/km}$.

- 7 a) Discuss the parameters that characterize a lossless and low lossy Transmission lines?

7M C04 BL2

- b) For given Propagation constant of Lossy Transmission Line is $1+j2$ per meter and its Z_0 is 20 ohms at $\omega=1\text{Mrad/sec}$. Determine the R,L,C,G?

7M C05 BL3

- 8 a) Explain the Single Stub matching on a transmission Line and derive the expressions and length of the stub used for matching a line?

7M C05 BL4

- b) A lossless transmission Line with $Z_0=75\text{ohm}$, and electrical length $l=0.3\lambda$ is terminated with load impedance $Z_r=40+j20$. Determine the reflection Coefficient at load, SWR of line ,input impedance of the line.

7M C05 BL3

