



B.Tech II Year I Semester Supplementary Examinations, March/April 2023
NETWORK ANALYSIS

(ECE)

Maximum Marks: 70

Date: 10.04.2023 Duration: 3 hours

- Note:
1. This question paper contains two parts A and B.
 2. Part A is compulsory which carries 20 marks. Answer all questions in Part A.
 3. Part B consists of 5 Units. Answer any one full question from each unit.
 4. Each question carries 10 marks and may have a, b, c, d as sub questions.

Part-A

All the following questions carry equal marks

(10x2M=20 Marks)

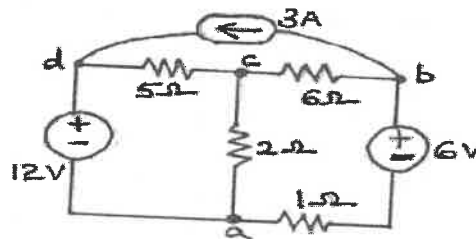
- 1 Write the function of Passive elements.
- 2 What is Ideal transformer.
- 3 How do you interpretate time constant in transient analysis.
- 4 What is mean of Transient response.
- 5 Find the Laplace transform of Impulse function.
- 6 State the advantages of Laplace transform.
- 7 Where ABCD parameter are used?
- 8 Why y-parameters are called as short circuit parameters?
- 9 Classify Constant K-Filters.
- 10 Define Characteristic Impedance.

Part-B

Answer All the following questions.

(5X10M=50Marks)

- 11 Derive the equivalent inductance of two inductors L_1 and L_2 connected in parallel opposing connection having mutual inductance M . [10]
- OR
- 12 Define tieset matrix, cutset matrix and find the tieset matrix and cutset matrix for the circuit shown in figure. [10]



- 13 For the following figure 2, the switch is closed at position 1 at $t=0$. At $t=0.5$ m Sec, the switch is moved to position 2. Find the expression for the current in both the condition and Sketch the transient current. [10]

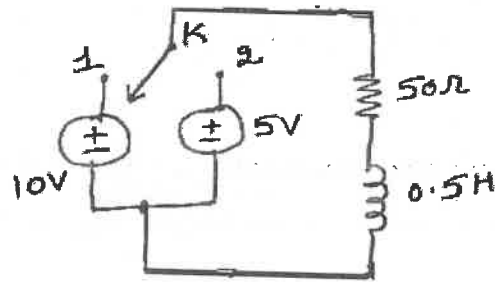


Figure 2

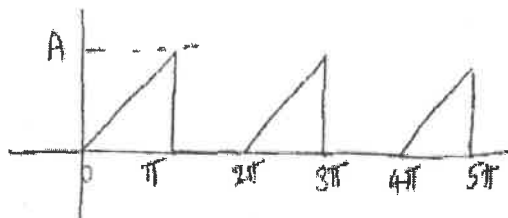
OR

14 Explain the transient response in time domain with constant DC excitation as input for a RC circuit. Draw the voltage waveform across R and C. [10]

15 Explain the transient response in S- domain with constant DC excitation as input for a RL circuit. Draw the voltage waveform across R and L. [10]

OR

16 find the average value, RMS value, peak factor and form factor for the following waveform shown in figures. [10]



17 The Z-parameters of a circuit are given by $Z_{11} = 4$; $Z_{12} = 1$; $Z_{21} = 3$; $Z_{22} = 3$. Obtain the transmission parameters. [10]

OR

18 Determine the Z-parameters for the network shown in figure 4. [10]

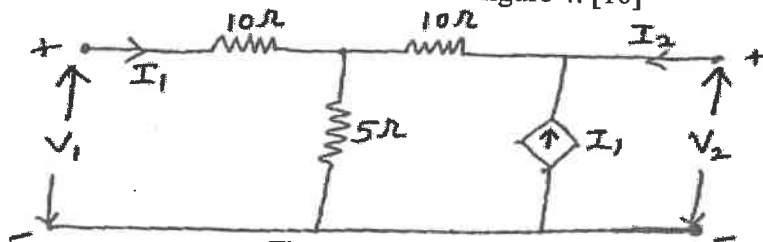


Figure 4

19 Define different types of filters with neat sketch. [10]

OR

20 a) Describe the principle of constant K low pass filter and high pass filter. [5]
 b) Design a constant K low pass filter of T-type with a cut off frequency of 2 KHz with a load resistance termination of 500 ohms. [5]