Question bank

Network Analysis & Synthesis (EEC-206)

SHORT QUESTIONS

UNIT 1

1. Write the relation between twig & link.

2. List out the properties of a Tree in a graph.

3. What are the advantages of graph theoretic method of network analysis?

4. What is a fundamental cut-set matrix?

5. What do you mean by oriented graph?

6. Derive KCL & KVL using graph theory.

7. Define- a) Tree b) co- tree c) planner and non-planner graphs d) incidence matrix.

8. State & prove Reciprocity theorem.

9. Thevenin's theorem can be applied to calculate current in what type of load?

10. State Tellegen's theorem.

11. What is the condition for maximum power transfer in a network? Also mention any two applications of maximum power transfer theorem.

12. Define superposition theorem, enlist limitations

13. State and prove maximum power transfer theorem in a.c. circuit.

14. State & explain Millan's theorem. Prove the theorem with suitable examples.

Unit-2

1. Write the time constants of RL and RC networks.

2. What do you mean by natural and forced response?

3. Illustrate graphically charging and discharging current of transient in RC circuit.

4. Discuss the advantages of analyzing the circuits using frequency domain rather than the time domain.

5. What are the steps for circuit analyzing using Laplace method?

Unit-3

1. An admittance is given by $Y(s)=1/(s+2)$. Find the pole zero plot.

2. Define transfer admittance and impedance of two port network.

3. Write the Z parameters in terms of ABCD parameters.

4. Mention the necessary and sufficient condition for the location of poles and zeros in driving point function.

5. For a two-port network, Y parameters are Y11=0.1 ohm. Y22=0.05ohm, Y12= Y21= - 0.02ohm. Calculate the Z parameters of the network.

6. A two port network is characterized by V1=10I1+ 5I2 and V2=5I1+12I2. find the transmission parameters A and C.

7. Derive the condition for reciprocity and symmetry in case of (i) T-parameter, (ii) hParameter.

8. Explain T-π transformation for two port networks.

9. Explain the concept of Complex frequency.

10. Determine T parameters in terms of open circuit and short circuit impedance.

Unit-4

1. What do you mean by network synthesis? How it is different from network analysis?

2. Draw the ideal characteristics of low pass, high pass, band pass, band elimination filters.

3. What do you understand by positive real function?

4. Differentiate active and passive filters.

5. Define cut-off frequency.

6. Write the properties of driving point immittance of LC network.

7. What are the necessary and sufficient conditions for positive real functions?

8. What are the two main methods for network synthesis?