Branch: Electrical Engineering
Subject: Network Theory

L T P
3-0-3
Credit : 5

Total Max Marks: 100
Final Exam: 70 Marks
Sessional: 20 Marks
Internals: 10 Marks.

1. Transient responseof RC, RL, RLC circuits to various excitation signals such as step, ramp, impulse and sinusoidal excitations using Laplace transform. **Lecture : 7**

2. Terminal pairs or ports, Network functions for one-port and two-port networks, poles and zeros of network functions, Restrictions on pole and zero locations for driving point functions and transfer functions, Time domain behavior from the pole-zero plot. **Lecture : 5**

3. Relationship of two-port variables, short circuit Admittance parameters, open circuit impedance parameters, Transmission parameters, hybrid parameters, relationships between parameter sets, Inter-connection of two-port networks. **Lecture : 8**

4. Principles of network topology, graph matrices, network analysis using graph theory**. Lecture : 8**
5. Filter fundamentals, high-pass, low-pass, band-pass, and band-reject filters**. Lecture : 6**

6. Positive real functions, synthesis of one-port and two-port networks, elementary ideas of Active networks. **Lecture : 8**

Text Books:
1. Networks and Systems by D Roy Choudhury; New Age International
2. Network Analysis by Van Valkenburg; PHI
3. Introduction to Modern Network Synthesis by Van Valkenburg; John Wiley

Reference Books:
1.Basic circuit theory by Dasoer Kuh; (McGraw Hill)
2.A Course in Electrical Circuit Analysis by Soni & Gupta; Dhanpat Rai Publication.
3.Circuit Analysis by G K Mittal, Khanna Publication.