**B.Tech. Degree Examination**

**Electronics &Communication Engineering**

**II SEMESTER**

**EEE-102**

**ELECTRICAL CIRCUIT THEORY AND ANALYSIS**

Time: 3 Hours Max.Marks: 60

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**Instructions:** Each Unit carries 12 marks.

Answer all units choosing one question from each unit.

All parts of the unit must be answered in one place only.

Figures in the right hand margin indicate marks allotted.

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**MODULE-I**

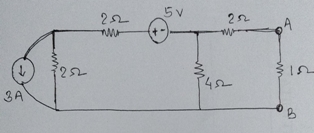
**1.** a) Explain different types of dependent and independent sources 6

b) State & explain the Norton's Theorem with an example 6

**OR**

**2.** a) State and explain maximum power transfer theorem 6

b) Using Thevinin's Theorem, find the power loss in AB branch 6



**MODULE-II**

**3.** a) What is time constant in RL circuit? Explain the series RL circuit with voltage source 6

b) A series RL circuit has R= 25 ohm and L= 5 Henry. A dc voltage of 100 V is applied at t=0. Find (i) the equation of charging current (ii) Voltage across R and L (iii) the current in the circuit 0.4sec later (iv) the time at which the drop across R and L are same. 6

**OR**

4. Obtain the expression of current and voltage when a D.C. input is applied to series RC circuit. 12

**MODULE III**

5. a) Explain the response of series RC circuit for a sinusoidal current source ad also draw its complex impedance triangle 6

b) Explain the phasor relation of R, L and C. 6

**OR**

6. a) Find the values of RMS and Average value of triangular waveform 6

b) Explain the response of series RLC circuit for a sinusoidal voltage source and also draw its phasor diagram 6

**MODULE IV**

7. a) Find the relation between bandwidth, resistance and inductance of series RLC circuit at resonance 6

b) Find the relation between Y and Z parameter in two port network 6

**OR**

8. a) Write the difference between self and mutual inductance 6

b) Find the expression of resonance frequency when R, L and C are connected in parallel 6

**MODULE V**

9. Explain the measurement of power and power factor of a balanced three phase load with phasor diagram 12

**OR**

10. Explain the relationship between line and phase voltage and currents in delta connection 12