

Reg. No: 

--	--	--	--	--	--	--	--	--	--

**SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR**  
 (AUTONOMOUS)  
**B.Tech I Year II Semester (R16) Regular Examinations June 2017**  
**NETWORK ANALYSIS**  
 (ELECTRONICS & COMMUNICATION ENGINEERING)  
 (For Students admitted in 2016 only)

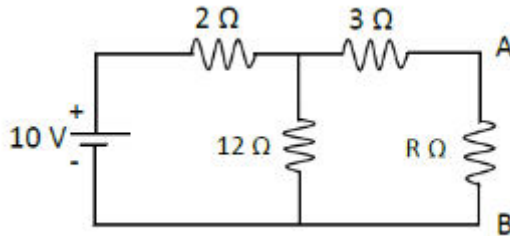
Time: **3 hours**

Max. Marks: **60**

(Answer all Five Units **5 X 12 = 60** Marks)

**UNIT-I**

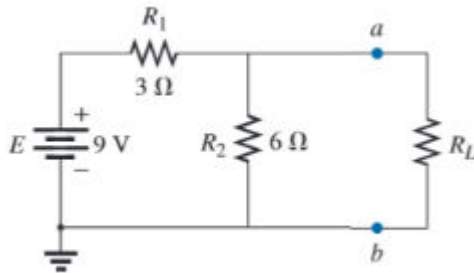
- 1 a Find the maximum power delivered to the load by using maximum power transfer theorem for the following circuit.



- b Explain the concept of source transformation? 8M  
4M

**OR**

- 2 a State and explain milliman's theorem. 4M  
 b Find Norton's equivalent for the following circuit.



8M

**UNIT-II**

- 3 a Explain the phasor relation for series RL and RC circuit. 6M  
 b A 120V AC circuit contains 10 Ω resistance and 30 Ω inductive reactance in series. What is average power of this circuit. 6M

**OR**

- 4 a Explain the characteristics of sinusoids. 4M  
 b A resistor of 150Ω, inductance of 200mH and a capacitance of 10μF are connected in series across 500V, 150Hz supply. Determine the following (i) Impedance (ii) current flowing through the circuit (iii) power factor (iv) voltage across R,L & C (v) power in watts 8M

**UNIT-III**

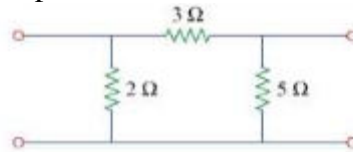
- 5 a Write the comparison between series resonance and parallel resonance? 6M  
 b Define and explain self and mutual inductance. 6M

**OR**

- 6 a A series RLC circuit has  $R=10\Omega$ ,  $L=0.5H$  and  $C=40\mu F$ . The applied voltage is 100V. Find (a) Resonant frequency & Quality factor of a coil (b) Bandwidth (c) Upper and lower Half power frequencies (d) Current at resonance & current at half power points (e) Voltage across inductance & voltage across capacitance at resonance. 8M  
 b Obtain the expression for resonant frequency for parallel RL-RC circuit 4M

**UNIT-IV**

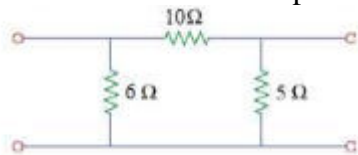
- 7 a Find the Z- parameters for the following circuit.



- b. Express ABCD parameters in terms of h parameters. 6M

**OR**

- 8 a Express Z parameters in terms of ABCD parameters 4M  
 b Find the ABCD and h - parameters for the following circuit.



8M

**UNIT-V**

- 9 Derive necessary expressions for m-derived high pass filter. 12M

**OR**

- 10 Give the analysis for the design of constant-K band pass filter. 12M

**\*\*\* END \*\*\***