Q.P. Code: 19EE0242 **R19**

**Reg. No:** | | | | | | | | | | |

**SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR**

(AUTONOMOUS)

**B.Tech II Year I Semester Supplementary Examinations August-2021**

**NETWORK THEORY**

**(Electronics & Communication Engineering)**

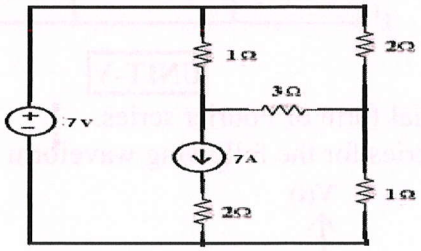
Time: 3 hours Max. Marks: 60

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

**UNIT-I**

1 **a** State and prove Reciprocity theorem. **6M**

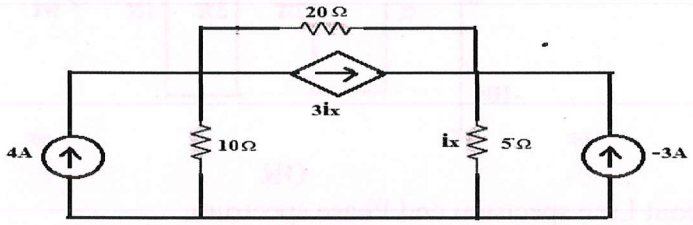
**b** Determine the mesh currents for the circuit shown in below figure. **6M**




**OR**

2 **a** Explain about Nodal analysis and write the steps for applying nodal analysis. **6M**

**b** Determine ix for the following network. **6M**




**UNIT-II**

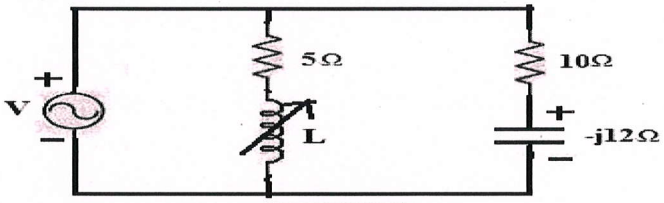
3 **a** A series RLC circuit has R=10Ω, L=0.1H and C=50μF. The applied voltage is 100V. Find Resonant frequency & Quality factor of a coil. **6M**

**b** Explain about Parallel resonance with phasor diagrams. **6M**

**OR**

4 **a** Explain about Quality factor and Band-width of Series resonance. **6M**

**b** Find the value of "L" at which the circuit resonates at a frequency of 1000 rad/sec in the circuit shown in figure **6M**




**UNIT-III**

5 **a** Derive the Laplace Transform of Series RC Circuit. **6M**

**b** The Circuit Consists Of Resistance=20 Ohm, Inductance = 0.05H, Capacitance = 20uF in Series with a 100V Constant at t=0. Find The Current Transient. **6M**

**OR**

6 Derive the Transient Response of series RLC-circuit with D.C excitation. **12M**

## UNIT-IV

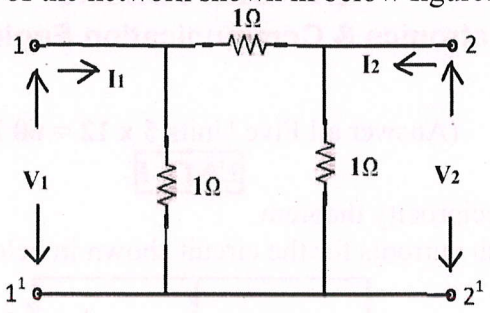
7 **a** Derive the expressions for Z-parameters in terms of ABCD-parameters. **6M**

**b** The hybrid parameters of a two-port network is shown in figure are, h11= 1K, h12= 0.003, h21= 100 and h22= 50μʊ.Find V2and Z-parameters of the network. **6M**

**OR**

8 **a** Explain about ABCD-parameters. **6M**

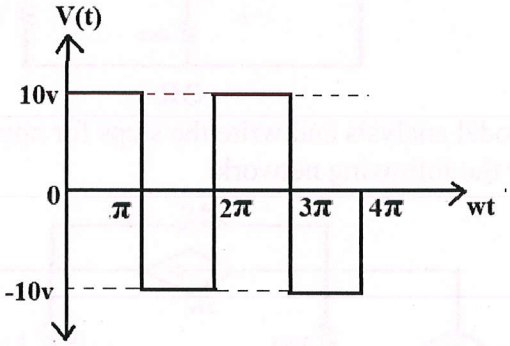
**b** Find the Z-parameters of the network shown in below figure. **6M**




## UNIT-V

9 **a** Derive the Exponential form of Fourier series. **6M**

**b** Obtain the Fourier series for the following waveform shown in figure. **6M**




**OR**

10 **a** Explain about Line spectrum and Phase spectrum. **6M**

**b** Explain about waveform symmetry for even and odd functions. **6M**

*** END ***