Code No: R7100406 **R7**

I B.Tech Year(R07) Supplementary Examinations, May/June 2010
NETWORK ANALYSIS
(Common to Electronics & Communication Engineering, Electronics & Instrumentation Engineering, Electronics & Control Engineering and Electronics & Computer Engineering)
Time: 3 hours **Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

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1. A circuit consists of three resistors 3 ohms, 4 ohms and 6 ohms in parallel and a fourth resistor 4 ohms in series. A battery of emf 12 V and internal resistance 6 ohms is connected across the circuit. Find the total current in the circuit and terminal voltage across the battery. [16]

2. A coil of relay has a resistance of 10 Ω and an inductive reactance of 500 Ω. The supply voltage is 230 V, 50 Hz. What is the energy lost in the coil in 8 Hrs? [16]

3. An inductive circuit of resistance 2 Ω and inductance 0.01 H is connected to a 250V, 50Hz supply. What capacitance must be connected in parallel with this inductive circuit to produce resonance. Find the total current from the supply and the current in each branch. [16]

4. Draw the oriented network graph from the incidence matrix given below. [16]

Nodes	Branches					
	1	2	3	4	5	6
A	-1	0	0	+1	-1	0
B	+1	-1	0	0	0	-1
C	0	+1	-1	0	+1	0
D	0	0	+1	-1	0	+1

5. Discuss about the relationship b/w Y parameters and Z - parameters. [16]

6. (a) What is Lattice Decomposition?
   (b) The Z parameters of a 2-port network are $Z_{11} = 20\Omega$, $Z_{22} = 30\Omega$, $Z_{12} = Z_{21} = 10\Omega$ Find the y parameters of the network. [16]

7. Derive the transient response of RLC series circuit with unit step input. [16]

8. Categorize filters and explain. [16]

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