

Code: EE2T5

I B.Tech-II Semester-Regular Examinations - July 2013

ELECTRICAL CIRCUIT ANALYSIS - I
(For Electrical & Electronics Engineering)

Duration: 3 hours

Marks: $5 \times 14 = 70$

Answer any FIVE questions. All questions carry equal marks

- 1 a) Explain the difference between Node and Super Node. 7 M
b) Explain how the star to delta and delta to star transformation can be made. 7 M
- 2 a) Explain the practical applications of Faraday's laws of electro-magnetic induction. 7 M
b) The total inductance of two coils is 0.2H when they are connected in subtractive series and 0.4H when in additive series. If the self inductances of the coils are 0.5H and 0.1H. Find the coefficient of Coupling between them. 7 M
- 3 a) Explain the terms Impedance, Susceptance and Admittance 7 M

- b) A Resistance of 1.0 Ohm and a Capacitance of 1.0 F are in series. An alternating voltage $v(t) = 2\sin(t + \alpha)$ is applied suddenly. Find an expression for the voltage across the Capacitor. 7 M
- 4 Develop the current locus of a RLC series circuit. 14 M
- 5 a) State and explain reciprocity theorem. 7 M
- b) Prove the significance of Maximum power transfer theorem. 7 M
- 6 a) What is the significance of Superposition theorem. 7 M
- b) State and explain the Thevenin's theorem applied to d.c. circuits. 7 M
- 7 Obtain an expression to find the current in a R-L series circuit when the applied input is a step Function. 14 M
- 8 a) Explain how cut set of a network is framed. 7 M
- b) Show that $z_{12} = z_{21}$ if a two port network is reciprocal. 7 M