SATHYABAMA UNIVERSITY
(Established under section 3 of UGC Act, 1956)

Course & Branch: B.E – ECE/EEE(Part Time)
Title of the paper: Circuit Theory
Semester: I   Max. Marks: 80
Sub.Code: 613PT101/614PT103/6CPT0024   Time: 3 Hours
Date: 13-12-2007   Session: FN

PART – A   (10 x 2 = 20)
Answer All the Questions

1. State Reciprocity theorem.

2. What is the condition to prove Maximum Power Transfer theorem?

3. What is meant by transient state?

4. Define time constant of an R-L circuit.

5. Define band width of a resonant circuit.

6. Draw the phasor diagram of a R-C circuit and write its expression in terms of impedance.

7. What are links and twigs?

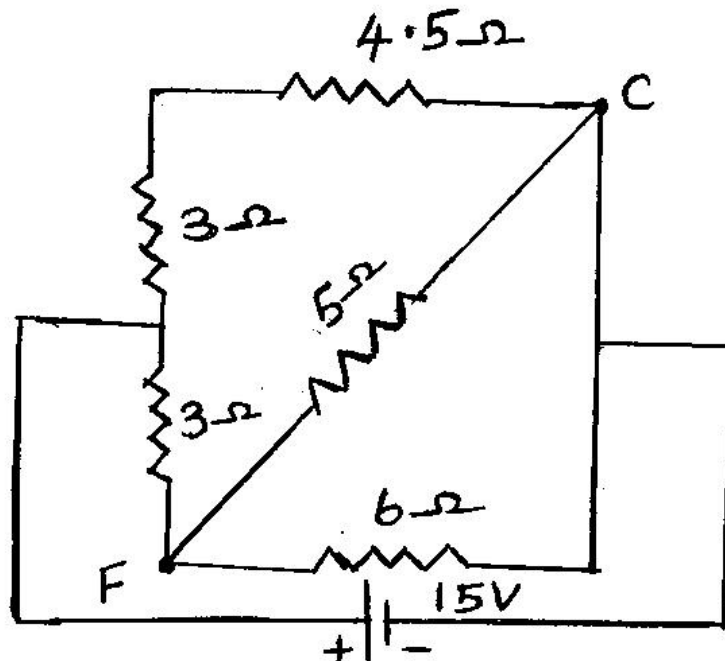8. What is meant by duality?

9. Define Pspice.

10. List some rules of Pspice.

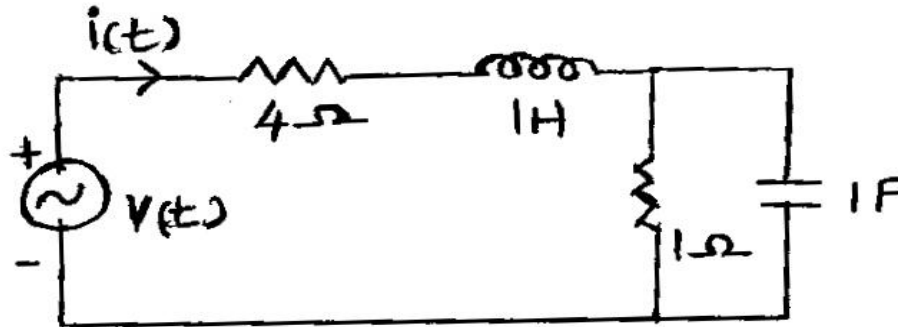11. Using Super-position theorem, find the V_{AB}
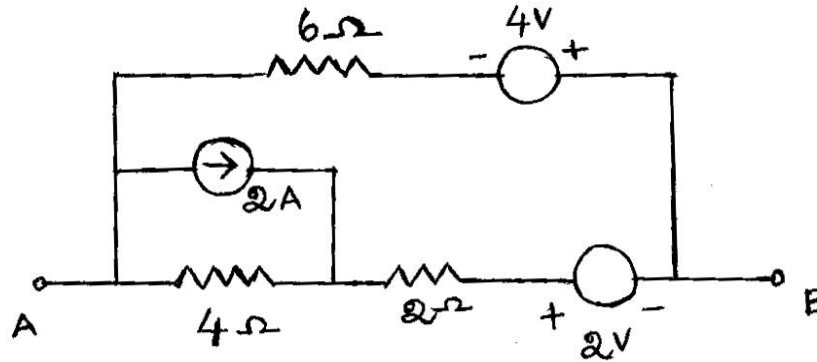
(or)

12. For the given circuit, calculate the current in the branch FC using Norton's theorem.
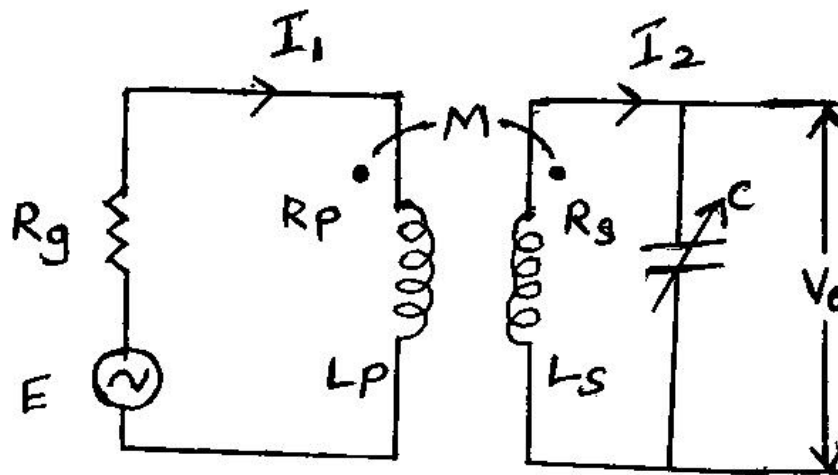

13. Derive the expression for Step response of RLC circuit for critical damping condition.

(or)

14. Obtain the Pole-Zero plot of the network shown below.

15. Derive an expression of I_2 for the single tuned coupled circuit given and draw its frequency response.

(or)

16. A RLC series circuit with a resistance of 10Ω , inductance of 0.2H and capacitance of $40\mu f$ is supplied with a 100 V at variable frequency, find the following.
    a) Resonant frequency   b) Quality factor.
    c) Band width.   d) Current
    e) Power   f) Half power points

17. For the network shown in figure, Obtain the tie – set matrix and hence write the equilibrium equations.   Also give the expression for the branch currents in terms of link currents.
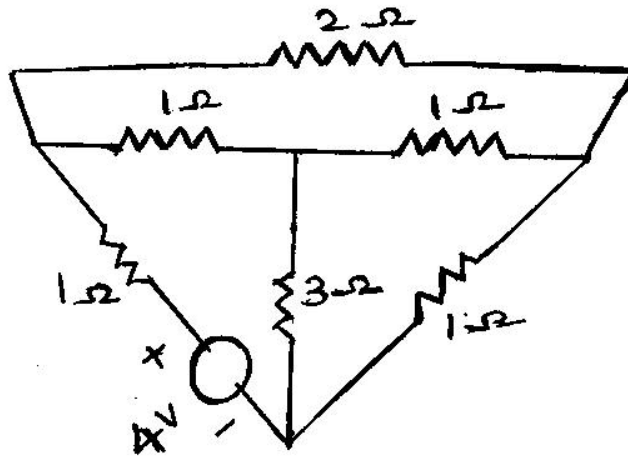
18. Obtain the dual network for the circuit shown below.
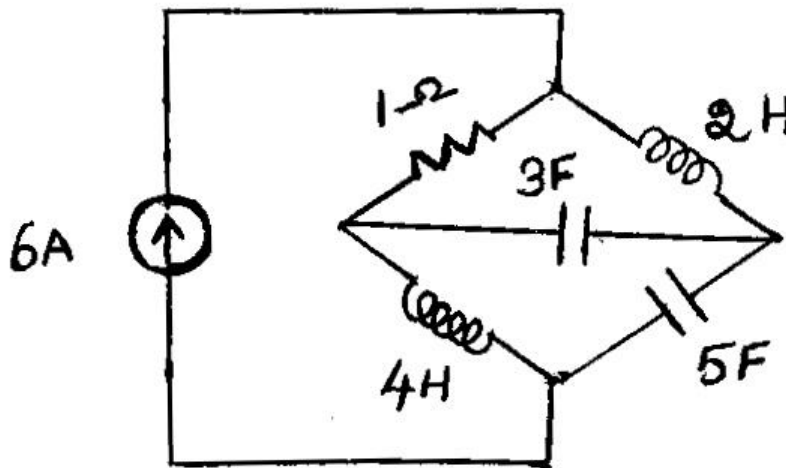
19. Explain about Resistor sweep DC analysis and Inductor sweep transient analysis.

(or)

20. Explain about frequency response range types in Pspice with an example.