Reg. No. _____

Karunya University
(Declared as Deemed to be University under Sec.3 of the UGC Act, 1956)

End Semester Examination – November / December 2008

Subject Title: **ELECTRIC CIRCUIT ANALYSIS**   Time : 3 hours
Subject Code: **EE201**   Maximum Marks: 100

Answer ALL questions
PART – A (10 x 1 = 10 MARKS)

1. Write two examples for linear elements.
2. Draw the symbol for a.c voltage source.
3. At resonance the power factor of the circuit is _____.
4. In two watt meter method, if one wattmeter reads zero value and another wattmeter reads some value then the power factor is _____.
5. The regulation value for an ideal Transformer is _____.
6. What is meant by node?
7. Mention any one application of maximum power Transfer Theorem.
8. Minimum number of sources required to apply super position theorem is _____.
9. Time constant value in RL series circuit =   ?
10. Draw the Transient response (current) for an RL series circuit.
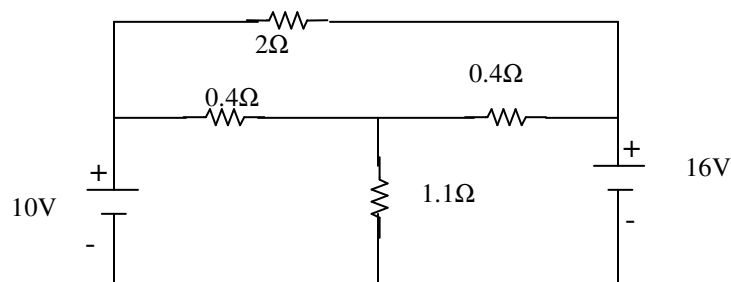
PART – B (5 x 3 = 15 MARKS)

11. Reduce the following to a single source.
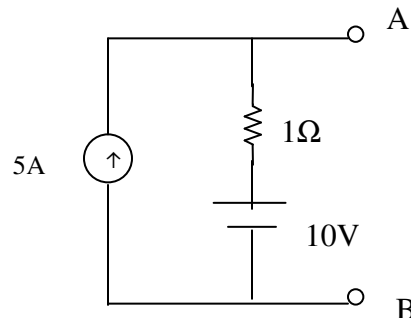
12. Define Bandwidth and Q-factor in an RLC series circuit.
13. Define co-efficient of coupling.
14. What is compensation Theorem?
15. Mention any two advantages of Laplace Transformation Technique in circuit Transients.

PART – C (5 x 15 = 75 MARKS)

16. Find the power delivered by the batteries of figure below.

(OR)

17. a.   What is lumped circuit.   (2)
    b.   Explain the V – I relationships of R,L and C.   (8)
    c.   Explain current division rule.   (5)

18. Derive the relationship among Quality factor, resonant frequency and bandwidth for a series RLC circuit with relevant response.
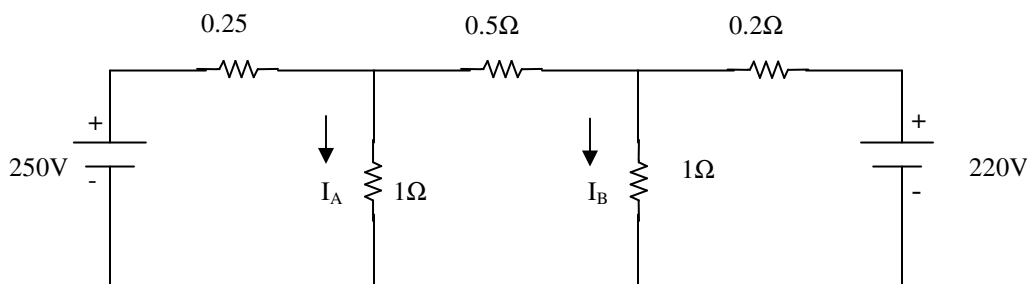
(OR)

19. Explain the three phase power measurement by two wattmeter method.

20. Calculate the current in the 5 ohm resistor for the coupled circuit shown in fig. below.
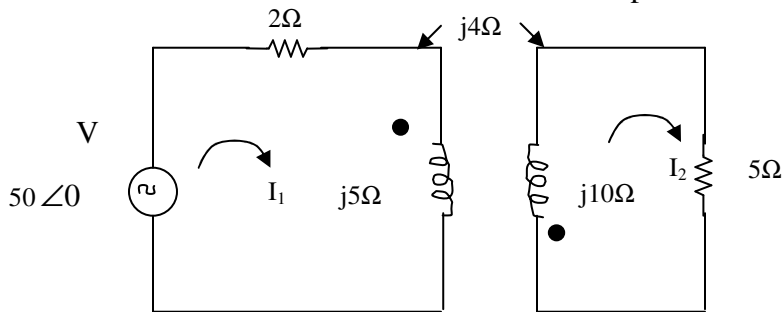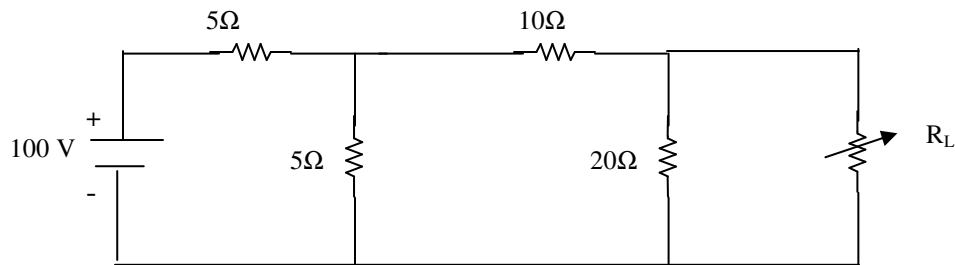

(OR)

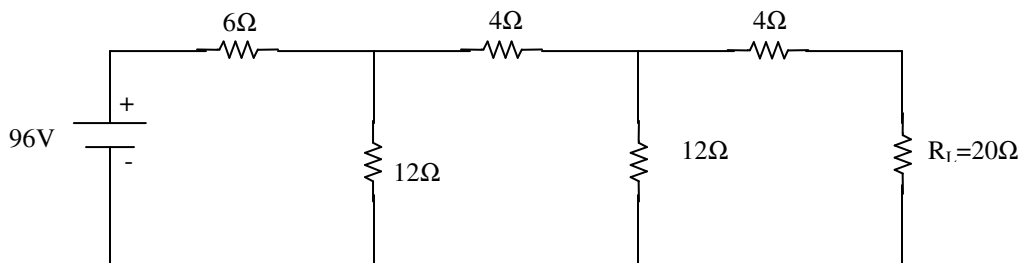21. Find by the nodal method the currents I_A and I_B for the circuit shown in fig. below.

22. Find the value of R_L so that maximum power is delivered to the load resistance R_L. Also calculate the Max. power.

(OR)

023. For the circuit shown in fig. below, find the current in 20Ω load resistor, using Thevenin's theorem.

24. A series R_L circuit with R = 100Ω and L = 20 h has a a.c. voltage of 200 volts applied through a switch at t = 0. Find (a) the equation for the transient current and voltage across the elements. (b) the current at t = 0.5 secs (c) the time at which $e_R = e_L$.

<div align="center">(OR)</div>

25. The following RC series circuit has an initial change Q_o = 2 x 10^{-2} coloumb as shown. Find the transient current if the switch is closed at t = 0.