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Question Paper Code: 31354

B.E. / B.Tech. DEGREE EXAMINATION, MAY 2016

Third Semester

Electronics and Instrumentation Engineering

01UEI304 - ELECTRICAL CIRCUITS AND NETWORKS

(Common to Instrumentation and Control Engineering)

(Regulation 2013)

Duration: Three hours   Maximum: 100 Marks

Answer ALL Questions.

PART A - (10 x 2 = 20 Marks)

1. Distinguish DC and AC electrical circuits.

2. Define KCL and KVL.

3. Illustrate Thevenin's theorem.

4. Express Current division formula and Voltage division formula.

5. Differentiate series and parallel resonance.

6. Define Quality factor.

7. Define time constant for Series RL and RC circuit with DC input.

8. Infer transient response.

9. Interpret Line voltage and phase voltage in a three phase electrical circuit.
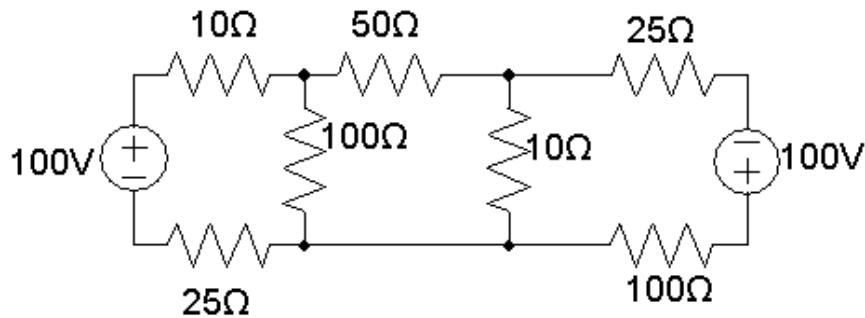
10. List the methods of power measurements.

11. (a) For the Circuit shown in below figure, find the voltage across the 10Ω resistor and the current passing through it using nodal analysis. (16)
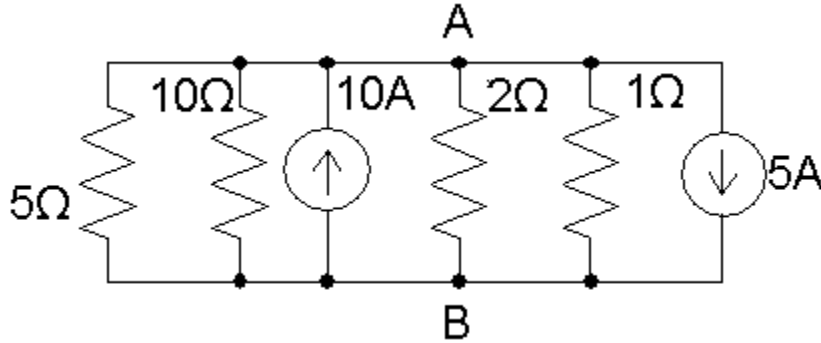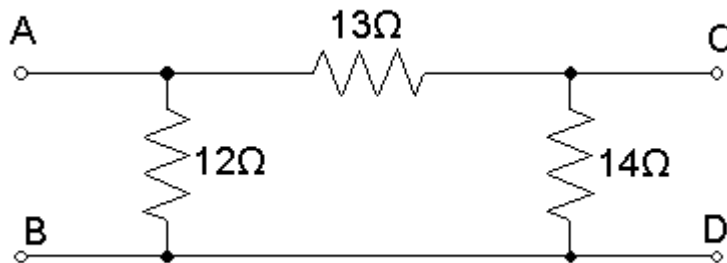

Or

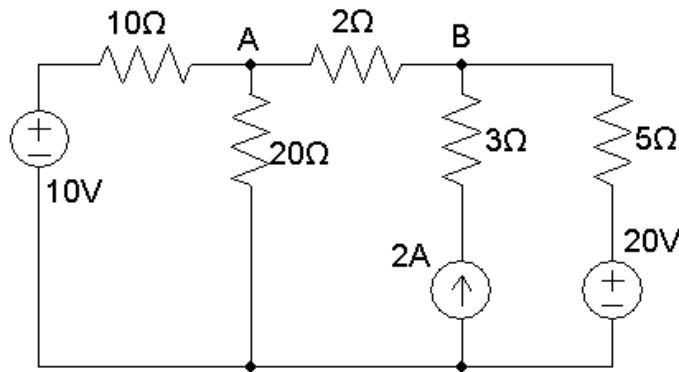(b) For the Circuit shown in below figure, find the current passing through the 50Ω using mesh analysis. (16)

12. (a) Obtain the star connected equivalent for the delta connected circuit. (16)

Or

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(b) Find the voltage across 2 Ω resistor by using superposition theorem. (16)

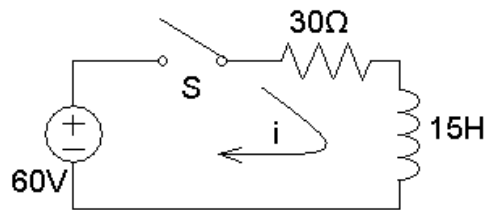13. (a) Discuss about series resonance and parallel resonance in detail. (16)

Or

(b) Summarize about self-inductance, mutual-inductance and Coefficient of coupling. (16)

14. (a) A series RL circuit is shown in figure; examine current, voltage across resistor and inductor. (16)

Or

(b) Derive the transient sinusoidal response of series R-C circuit. (16)

15. (a) A three phase balanced delta connected load (4+j8) Ω is connected across a 400V, three phase balanced supply. Determine the phase currents and line currents. Assume the phase sequence to be RYB. Also calculate the power drawn by the load. (16)

Or

(b) Describe about power measurement in three phase circuits. (16)

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