Hall Ticket Number :										

R-11 / R-13

Code: 1G236

II B.Tech. I Semester Supplementary Examinations May 2019

Electrical Circuit Theory

(Electronics and Communication Engineering)

Max. Marks: 70 Time: 3 Hours

Answer any **five** questions

All Questions carry equal marks (**14 Marks** each)

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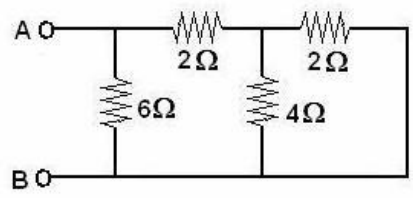
1. a) Determine the equivalent resistance between A and B of the network shown below.



   b) Explain source transformation with examples

2. a) A resistance R is connected in series with a parallel circuit comprising two resistances of 12Ω and 8Ω. The total power dissipated in the circuit is 700 Watts when the applied voltage is 200 V. Calculate the value of R.

   b) By taking any one example write down the procedure to obtain node voltages by using nodal analysis.

3. a) Define the following terms

      i) Cycle ii) Amplitude iii) Phase iv) Form factor

   b) Derive the RMS and average value of a sinusoidal current waveform. Hence find form factor and amplitude factor

4. a) State the properties of series R-L-C Resonance circuit and obtain the Resonance frequency?

   b) A RLC series circuit consists of R = 50Ω L = 0.16H and C = 4 μF. Calculate resonant frequency, quality factor, band width and half power frequencies.

5. a) What are the advantages of three phase system over single phase system?

   b) Three identical impedances of (3+j4)Ω are connected in delta. Find an equivalent star network such that the line current is the same when connected to the same supply.

6. a) Define MMF, Flux density, Magnetizing force and Permeability and specify merits for each of the above quantities.

   b) The combined inductance of two coils connected in series is 0.6H or 0.1H, depending upon the relative directions of the currents in the coils. If one of the coils when isolated has a self-inductance of 0.2H, Calculate

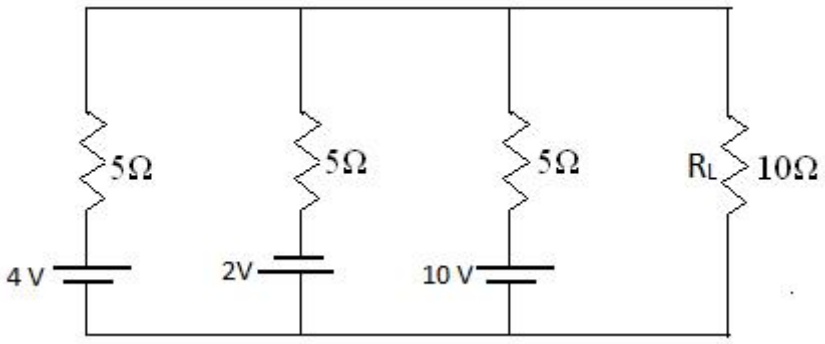
      i. Mutual inductance, and

      ii. The Coefficient of coupling

7. a) State and explain thevenin's theorem.

   b) State Maximum Power Theorem and derive the condition for Maximum Power Transferred from Source to the resistive load?

8. Find the current through load resistance R_L and also find the voltage drop across load using Millman's theorem for the network as shown in fig



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