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Code: 15A02301 **R15**

B.Tech II Year I Semester (R15) Regular & Supplementary Examinations November/December 2018

ELECTRICAL CIRCUITS – II

(Electrical & Electronics Engineering)

Time: 3 hours Max. Marks: 70

PART – A

(Compulsory Question)

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1 Answer the following: (10 X 02 = 20 Marks)

(a) Write the expression for impedance of R-L-C series circuit.
(b) State Millman's theorem.
(c) What do you mean by reactive power?
(d) Define frequency.
(e) Compare balanced and unbalanced circuits.
(f) State any two properties of Fourier transform.
(g) Define network topology.
(h) Draw the symbol of constant current source.
(i) What do you mean by duality in electrical networks?
(j) State any two applications of band pass filter.

PART – B

(Answer all five units, 5 X 10 = 50 Marks)

UNIT – I

2 Two coils A and B are connected in series across a 240 V, 50 Hz supply. The resistance of coil A is 5 ohms and inductance of coil B is 0.015 H. If input from the supply is 3 kW and 2 kVA, find the resistance of coil B and inductance of coil A. Also calculate voltage across each coil.

OR

3 Discuss pulse excitation of RL and RC networks.

UNIT – II

4 Discuss about the measurement of active power in balanced and unbalanced three phase systems.

OR

5 Explain the star-to-delta and delta-to-star transformation for a resistive network.

UNIT – III

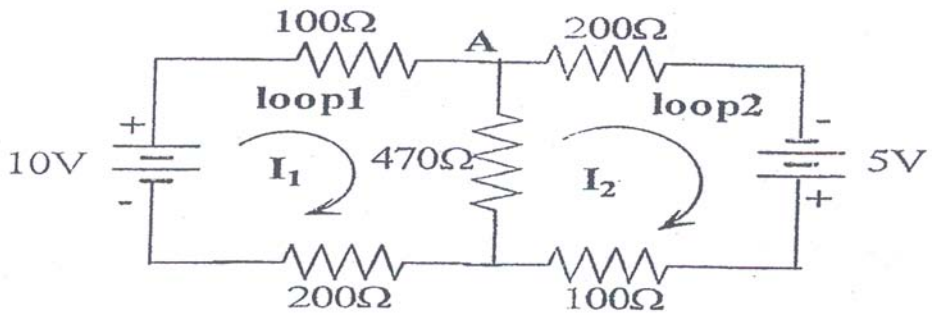
6 Explain how Fourier transforms are applied in analyzing the electrical circuits. Discuss with simple example.

OR

7 Discus exponential and trigonometric forms of Fourier series. Also derive trigonometric form of Fourier series from its exponential counterpart.

UNIT – IV

8 Prove Kirchhoff's voltage law in loop 2 from the circuits give in figure below:



OR

9 What do you mean by super node analysis? Consider a suitable circuit on your own and explain super node analysis on that.

UNIT – V

10 What are the roles of filters in signal processing? Explain notch filter in detail.

OR

11 Draw the circuit of low pass active filter and discuss its operation and characteristics.

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