Code No. 3010

FACULTY OF SCIENCE

B.Sc. I – Semester (CBCS) Examination, November / December 2018

Subject : ELECTRONICS (Circuit Analysis)

Paper – I

Time : 3 hours

Max. Marks : 80

Part – A (5 X 4 = 20 Marks)
(Short Answer Type)

Note : Answer any Five of the following questions.

1. Define a phasor and explain the phasor representation of sinusoidal voltage.
2. Distinguish between active and passive networks.
3. State Milliman's theorem.
4. Find the load resistance and current for maximum power transfer from a source of 100 volts dc having internal resistance of 50Ω.
5. Derive the expression for decay current in LR circuit and hence define time constant.
6. Mention the main characteristics of series resonance circuit at resonance.
7. Draw the circuit diagram of a low pass RC filter and draw its frequency response graph.
8. Explain the measurement of the phase angle using a CRO.

Part – B (4 X 15 = 60 Marks)
(Essay Answer Type)
Note : Answer all from the following questions.

9. a) Define and derive the expression for the average and RMS value of a sinusoidal AC waveform.

OR

   b) Explain the terms Node and Mesh. Explain mesh current and node voltage analysis to solve a two loop network with a single source in one branch.

10. a) State and prove Thevenin's theorem.

OR

   b) State and prove reciprocity theorem.

11. a) Discuss the transient response of RC circuit with figures and derive the expression for the time constant.

OR

   b) Explain the working of differentiator and integrator circuit with RC combination.

12. a) Draw the block diagram of a CRT and briefly explain its parts.

OR

   b) What is resonance? Derive the expression for resonance frequency and quality factor of parallel resonant RLC circuit.

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