

Faculty of Sciences

B.Sc (Electronics) I-Year, CBCS-I Semester Examinations 2018-19

PAPER: CIRCUIT ANALYSIS

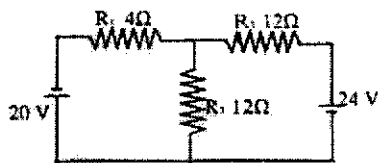
Time: 3 Hours

Max Marks: 80

Section-A

I. Answer any FIVE of the following questions (5x4=20 Marks)

1. Define average value of a.c. current. Derive an expression for it.
2. State and explain KCL and KVL.
3. Find the current through resistance R_2 of the circuit given below, using superposition theorem.



4. State Reciprocity theorem and explain it with circuit diagram.
5. Explain the decay of charge in RC circuit.
6. What is high pass filter? Obtain an expression for Lower cutoff frequency of RL circuit.
7. The quality factor of resonance circuit is 50. If the resonant frequency is 500 Hz for the value of inductor of 20mH. Calculate the value of the resistance.
8. Draw the block diagram of CRO and mention controls of CRO.

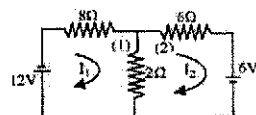
Section-B

II. Answer the following questions (4x15=60 Marks)

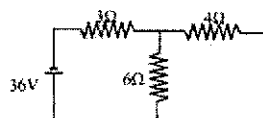
9. (a) What are constant current and constant voltage sources? Explain the conversion of constant current into constant voltage source.

(OR)

- (b) What are Node voltage and mesh current methods? Find the current through 8Ω resistance of the circuit given below, using mesh current method.



- 10.(a) State and prove Thevenin's theorem. Find the Thevenin's equivalent of the circuit given below.



(OR)

(b) State and explain maximum power transform theorem.

11.(a) Derive an expression for current growth and decay of RL circuit.

(OR)

(b) What are Differentiating and Integrating circuits? Explain with necessary theory, how RC circuit can be used as differentiator and integrator.

12.(a) Derive an expression for resonant frequency of series LCR circuit and explain the working of LCR circuit with resonant frequency, Q-factor and bandwidth.

(OR)

(b) What is CRO? Mention the main parts of CRO. Explain deflection sensitivity of CRO with necessary theory.
