

FACULTY OF SCIENCE
B.Sc. CBCS I-Year (I-Semester) Regular Examinations, Feb/Mar-2023
Electronics-I
(Circuit Analysis)

Time: 3 Hours

Max Marks: 80

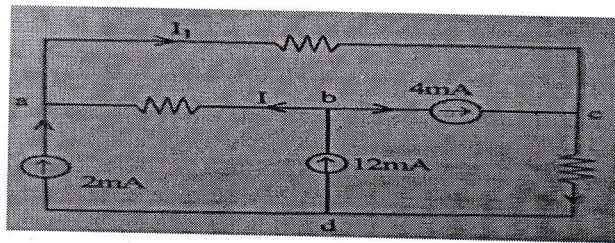
SECTION-A

(4x5=20 Marks)

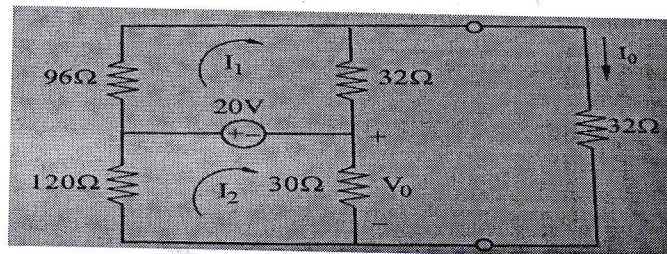
(Short Answer Type)

Answer any Four questions from the following

1. How can you express a complex numbers in polar and rectangular forms?
2. Explain KVL with the help of a single source network.
3. By applying KCL find the values of branch currents I and I_1 for the circuit shown below.



4. Briefly explain Millman's theorem.
5. Given circuit is,

Find V_{oc} , R_{Th} and I_0 , using Thevenin's theorem.

6. Discuss any one Low pass filter.
7. Define band width, Q- factor and selectivity.
8. What is the need for time base in a CRO?

SECTION-B

(4x15=60 Marks)

(Essay Answer Type)

Answer the following questions

9. (a) Define RMS value and Average Value. Derive expression for average value of a sinusoidal signal over a half cycle.
(OR)
(b) Explain the concept of ideal and practical current sources and discuss their V-I characteristics.
10. (a) State and prove Norton's theorem and explain how a Norton's equivalent circuit is related to thevenin's equivalent circuit.
(OR)
(b) State and prove superposition theorem. Explain how it can be usefully employed in a network.

Contd.....2

11. (a) What is a differentiator? Draw the circuit of a differentiator and obtain its output expression. Draw its input and corresponding output wave forms.
(OR)
(b) In detail explain the transient response of RC-Circuit.
12. (a) Obtain an expression for the impedance of a series RLC circuit at resonance and explain Voltage Magnification.
(OR)
(b) Explain the construction and working of a CRT.