

(ELE 1303)

**B.Sc. (MECS) (CBCS) Examinations**

AUGUST - 2021 (Backlog)

EXAMINATION AT THE END OF SEMESTER - I

PART - II ELECTRONICS-I

**BASIC CIRCUIT THEORY**

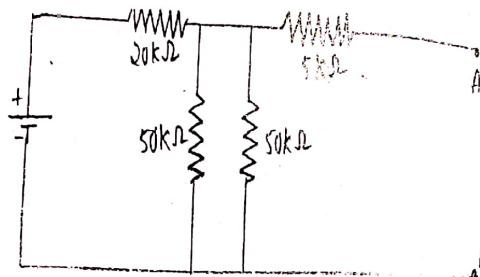
TIME : Three hours

Maximum : 60 Marks

Answer any Five Questions.

4x5m=20M

1. Define J-operator and write its significance.
2. Explain series and parallel networks.
3. State and prove Norton's Theorem.
4. How do you measure voltage using CRO.
5. Explain the working of integrator using LR circuit.
6. Explain the working of differentiator using CR circuit.
7. A series LCR circuit has  $R=5\ \Omega$ ,  $L=1\text{mH}$ ,  $C=1\ \mu\text{F}$  Calculate the resonant frequency and Q-factor.
8. Find the peak, average and RMS value of an AC current represented by  $I=28.4 \sin 624t$ .
9. What are the differences between series and parallel resonance circuits.
10. Show the Thevenin's circuit for the circuit given below.



SECTION-

Answer the Following Questions.

5x8M=40M

1. (a) What is alternating current? Draw ac waveform of current and explain the following terms: (i) time period (ii) wavelength (iii) phase angle.

(OR)

- (b) Describe phasor representation of sinusoidal currents and voltages.

12. (a) State and explain Kirchhoff's laws of electric network. Explain Node-Voltage method with single source in one arm.

(OR)

(b) Explain mesh-current method of electric network.

13. (a) State and prove Maximum Power transfer theorem and obtain expression for the maximum power.

(OR)

(b) State and prove Superposition theorem.

14. (a) Explain the transient response of R-L circuit with dc source.

(OR)

(b) Explain the function of C-R circuit as passive differentiating circuit.

15. (a) Draw series L-C-R circuit. Obtain formula for the resonant frequency and Quality factor.

(OR)

(b) Explain the construction and working of Cathode Ray Tube.

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