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Question bank for B Sc MECs I Year-I semester

Subject: Electronics Paper: I Subject Title: Circuit Analysis

UNIT- I (AC Fundamentals, KCL and KVL)

Short Questions

1. Define waveform and give the properties of alternating quantities.
2. Conversion (polar and rectangular forms).
3. Write a note on phasor diagram of A.C signal.
4. Define conductance and susceptance in ac circuits.
5. Define the terms impedance and admittance.
6. Write a note on the concept of ideal and practical voltage source.
7. Write a note on the concept of ideal and practical current source.
8. State Kirchhoff's laws.

Essay Questions

1. What is meant by average and RMS value of ac voltage and derive the expression for them?
2. Explain the representation of complex value in different forms.
3. Explain the method of solving using mesh or loop current method with an example.
4. Explain the method of solving using node voltage method with an example.

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UNIT-II (Network Theorems)

Short Questions

1. State Thevenin's theorem.
2. State Maximum power transfer theorem.
3. State and prove reciprocity theorem.

Essay Questions

1. State and prove Thevenin's theorem.
2. State and prove Norton's theorem.
3. State and prove Superposition theorem.
4. State and prove Maximum power transfer theorem.

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Short Questions

1. Define time constant of RC circuit.
2. What is a filter? List various types of filters.
3. What is meant by integrator? Explain.
4. What is meant by differentiator? Explain.

Essay Questions

1. Discuss the transient response of LR circuit under switch close and open condition.
2. Discuss the transient response of CR circuit under switch close and open condition.
3. What is meant by a low pass filter? Explain the CR circuit as a low pass filter.
4. What is meant by a low pass filter? Explain the LR circuit as a low pass filter.
5. What is meant by a high pass filter? Explain the LR circuit as a high pass filter.
6. What is meant by a high pass filter? Explain the CR circuit as a high pass filter.

UNIT- IV (Resonance and CRO)

Short Questions

1. Define series and parallel resonances.
2. Distinguish between series and parallel resonance.
3. List the applications of CRO.
4. Draw and explain the block diagram of CRO.

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Essay Questions

1. What is meant by resonance? Obtain the expression for resonant frequency and quality factor of series LCR resonance circuit.
2. What is meant by resonance? Obtain the expression for resonant frequency and quality factor of parallel LCR resonance circuit.
3. Draw the block diagram of CRO and explain the function of each block.

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