



DEPARTMENT OF ARTIFICIAL INTELLIGENCE AND DATA SCIENCE

Course Code & Name: **23EET103-Electrical Circuits and Electron Devices**

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Puzzles/In Class Activities

Topics Covered: **Unit II-AC Circuits**

1. (Match the Following)

- A. RMS Value → Effective heating value
 - B. Average Value → Mean of instantaneous values
 - C. Power Factor → Measure of efficiency
 - D. Reactive Power → Non-working power component
- Answer: A-RMS, B-Average, C-Efficiency, D-Reactive
Industry: Schneider Electric (AC Measurements)
Career Mapping: Placement Interview
GATE Mapping: GATE ECE2022-AC Analysis

2. (Riddle)

- Q: Is wing up and down, yet never move. I'm a picture of alternating love. What am I?
A: Sinusoidal Waveform
Industry: Qualcomm (Signal Processing)
Career Mapping: Virtual Internship
GATE Mapping: GATE ECE2019-AC Signals

3. (Short Question)

- Q: What is the phase difference between voltage and current in a pure inductor?
A: 90° (Current lags voltage)
Industry: Intel (Electronics Fundamentals)
Career Mapping: Placement Interview
GATE Mapping: GATE ECE2020-Inductive Circuits

4. (Puzzle - Word Scramble)

- Q: Unscramble: "CACILCIRT"
A: AC Circuit
Industry: Ericsson (Telecommunication Power Systems)
Career Mapping: In-house Training
GATE Mapping: GATE ECE2017-AC Analysis

5. (Odd-Man-Out)

- Q: Real Power, Reactive Power, Apparent Power, Optical Power →
A: Optical Power (Others are electrical power types)
Industry: Huawei (Network Equipment)
Career Mapping: Placement Interview
GATE Mapping: GATE ECE2021-Power Calculations

6. (Short Numerical Quiz)

Q: A current of 2A flows through a 5Ω resistor. Find the voltage across it.

A: 10V

Industry: Texas Instruments (Measurement Systems)

Career Mapping: In-house Training

GATE Mapping: GATE ECE2020–Ohm'sLaw

7. (Match the Following)

A. Series Circuit→ Same current

B. Parallel Circuit→ Same voltage

C. Power Factor→ $\cos\phi$

D. Kirchhoff's Voltage Law→ Energy conservation

Answer: A–Same current, B–Same voltage, C– $\cos\phi$, D–Energy conservation

Industry: Intel (Circuit Analysis)

Career Mapping: Virtual Internship

GATE Mapping: GATE ECE2019–CircuitLaws

8. (Riddle)

Q: I'm unseen but essential; I store energy without a charge. I resist change in current. Who am I?

A: Inductor

Industry: Texas Instruments (Analog Component R&D)

Career Mapping: Placement Interview

GATE Mapping: GATE ECE2022–Inductance Concepts

9. (Quiz)

Q: Define the term "Impedance".

A: The total opposition (resistance + reactance) offered by an AC circuit.

Industry: Siemens (Power Engineering)

Career Mapping: Virtual Internship

GATE Mapping: GATE ECE2018–ACImpedance

10. (Odd-Man-Out)

Q: Voltage, Current, Resistance, Capacitance→

A: Capacitance (Others are fundamental circuit quantities)

Industry: Broadcom (Signal Circuits)

Career Mapping: In-house Training

GATE Mapping: GATE ECE2021–BasicQuantities