Term End External Examination 1st Semester (Session-Feb 2025)

Subject: Skill Enhancement Course

Course No and Title: ELT122S/ Electrical Circuits and Networking Skills

Time: 1.15 hours **Max Marks:50** **Min. Marks:20**

Section A: Objective Type Questions

Q1. Choose the appropriate Answer: (4x1.5=06)

i. In a series circuit, the current is:

A Different across each resistor **B** The same across each resistor

C Zero **D** Variable

ii. Which of the following describes the relationship between voltage and current in a capacitor when charging?

A Voltage leads current by 90 degrees. **B** Current leads voltage by 90 degrees.

C Voltage and current are in phase. **D** Voltage and current are 180 degrees out of phase.

iii. Impedance is the total opposition to current flow in an:

A DC Circuit **B** AC Circuit

C Open Circuit **D** Short Circuit

iv. What is the relationship between frequency and the inductive reactance of an inductor?

A They are inversely proportional. **B** They are directly proportional.

C They are unrelated. **D** Inductive reactance is constant.

Section-B: Descriptive Type Questions (Short Type)

Q2: Answer all the Questions (4 x 4 =16)

i. What is the difference between AC and DC electricity?

ii. What is a multimeter? Describe the process of measuring current, continuity and voltage using a multimeter.

iii. What is impedance?

iv. Describe the response of a capacitor to a DC source.

Section – C: Descriptive Type Questions (Medium Type)

Answer all the questions: (2 x 7=14)

Q3. Explain the concept of power factor in AC circuits. Why is it important to have a power factor close to unity?

OR

Three resistors 1 Ω, 10 Ω, 100 Ω are connected in series and parallel combination. Find total resistance for each combination.

Q4. Explain the basic operation of a DC generator.

OR

Analyze the design and operation of a three-phase AC motor.

Section – D: Descriptive Type Questions (Long Type)

Answer any one of the following: (1 x 14=15)

Q5. Explain how to analyze AC sourced electrical circuits, including the calculation of real, imaginary, and complex power.

Q6. Describe the construction and principle of operation of a transformer.