

CS-106

**B.TECH I & II SEMESTER  
EXAMINATION [JUNE--2025]  
ELECTRICAL AND ELECTRONICS ENGINEERING**

**Maximum Marks:70**

**Time Allowed:3 Hours**

**Note: -Attempt all questions. Internal choices are given.**

(SECTION -A)

**1. Short Answer Type Questions (Attempt Any Five)**

[5x6=30]

- Explain sources of energy.
- State and explain Kirchhoff's laws.
- Define Average value, RMS value and Form factor.
- Differentiate between electric and magnetic circuit.
- Explain working principle of transformer.
- Explain the term Synchronous speed and Slip in an induction motor.
- Draw logic diagram and truth table of JK flip flop.
- What do you mean by balanced and unbalanced three phase load?

(SECTION -B)

[4x10=40]

**2. Long Answer Type Questions (Attempt Any Four)**

- State & explain Superposition theorem.
- Two circuits, the impedance of which are given by  $Z_1=(3+j4)\Omega$  &  $Z_2=(6-j8)\Omega$  are connected in series. If the combination is connected across single phase 200 V, 50Hz A.C. supply. Determine total impedance, current, Active power, apparent power and power factor of whole circuit.
- Explain construction and working principle of DC machine.
- Enumerate the various losses in a transformer. How these losses can be minimized?
- Draw and explain complete torque slip characteristics of three phase induction motor.
- Use mesh analysis to determine the three mesh currents in the circuit given below.

