Class Test-1

September 2025

B.Tech - I[st] SEMESTER (CE12)

Basic Electrical Technology (ESC-101-A)

Time: 90 mins | Max. Marks:15

Instructions: *Attempt all questions.*

PART -A

Q1 (a) What are different types of dependent sources? (1)[CO1]L1

(b) Enumerate various advantages of AC system over DC systems. (1)[CO2]L1

(c) How much efficiency is obtained under the condition of maximum power transfer. List the various applications of maximum power transfer theorem. (1)[CO1] L1

(d) Define the terms (i) phase and (ii) phase difference in case of alternating quantity. (1)[CO2] L1

PART -B

Q2 Find the value of current flowing through 3 Ω resistor using Mesh Analysis for the circuit shown in Fig.1 (3)[CO1]L2

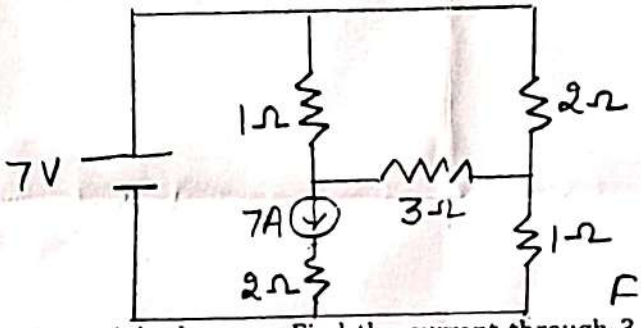

Fig. 1

Q3 State Thevenin's theorem. Find the current through 3 Ω resistor by using Thevenin's theorem [Fig.2] (3)[CO1]L2

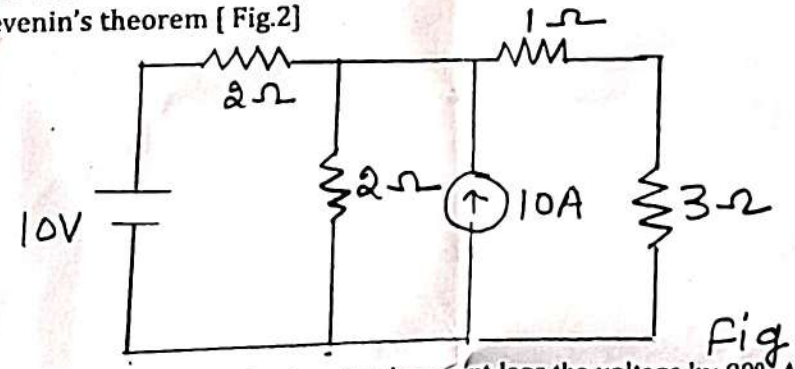

Fig. 2

Q4 (a) Show that in a purely inductive circuit current lags the voltage by 90°. Also show that the average power consumed by it is always zero. (2.5) [CO2]L2

(b) For a half wave rectified alternating current, find the (i) Average value (ii) r.m.s value and (iii) Form factor. (2.5) [CO2]L2