

B.Tech II Year I Semester (R15) Regular Examinations November/December 2016

ELECTRICAL & MECHANICAL TECHNOLOGY

(Civil Engineering)

Time: 3 hours

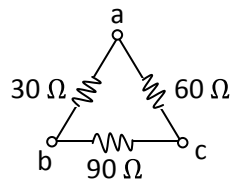
Max. Marks: 70

Answer all questions
All questions carry equal marks

PART – A
(Electrical Technology)

UNIT – I

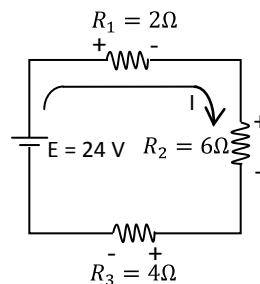
- 1 (a) Find the equivalent Y circuit for the Δ circuit shown in figure below.



- (b) A lamp can work on a 50 volt main taking 2 amps. What value of the resistance must be connected in series with it so that it can be operated from 200 volt mains giving the same power?

OR

- 2 For the series circuit shown in figure below, find the following quantities:
(a) Total resistances, R_T . (b) Circuit current, I . (c) Voltage across each resistor. (d) Power dissipated by each resistor. (e) Power delivered to the circuit by the voltage source (f) Verify that the power dissipated by the resistors is equal to the power delivered to the circuit by the voltage source.

**UNIT – II**

- 3 (a) What is meant by OCC of a DC generator and explain?
(b) A 250 V, 4-pole wave wound DC series motor has 782 conductor on its armature. It has armature and series field resistance of 0.75 ohm. The motor takes a current of 40 A. Estimate its speed and gross torque developed if it has a flux per pole of 25 mWb.

OR

- 4 Explain the different speed control methods of DC motor.

UNIT – III

- 5 Derive an expression for induced EMF of a single-phase transformer.

OR

- 6 Explain the construction, working and applications of three-phase induction motor.

PART – B
(Mechanical Technology)

UNIT – I

- 7 Explain about welding and its classification.
OR
8 Briefly explain TIG and MIG processes with neat sketch.

UNIT – II

- 9 Give the description of steam engines and steam turbines.
OR
10 Explain gas turbine and types of gas turbine.

UNIT – III

- 11 Explain the vapour compression refrigeration system with neat block diagram.
OR
12 Explain ventilation system and types of ventilation system.
