R15

Code: 15A01301

B.Tech II Year I Semester (R15) Supplementary Examinations June 2017

ELECTRICAL & MECHANICAL TECHNOLOGY

(Civil Engineering)

Time: 3 hours Max. Marks: 70

Answer all the questions
(Use single answer booklet only)
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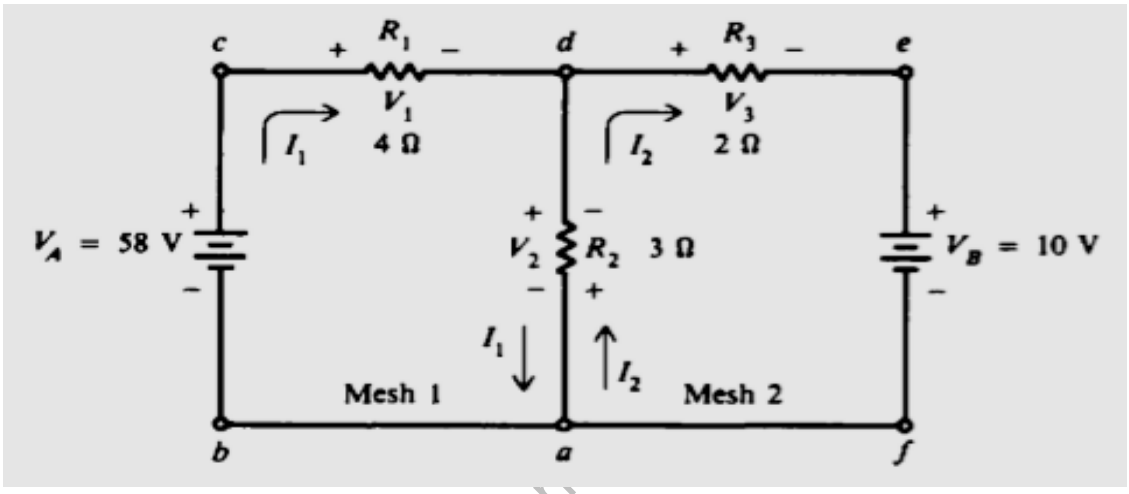
PART – A
(Electrical Technology)

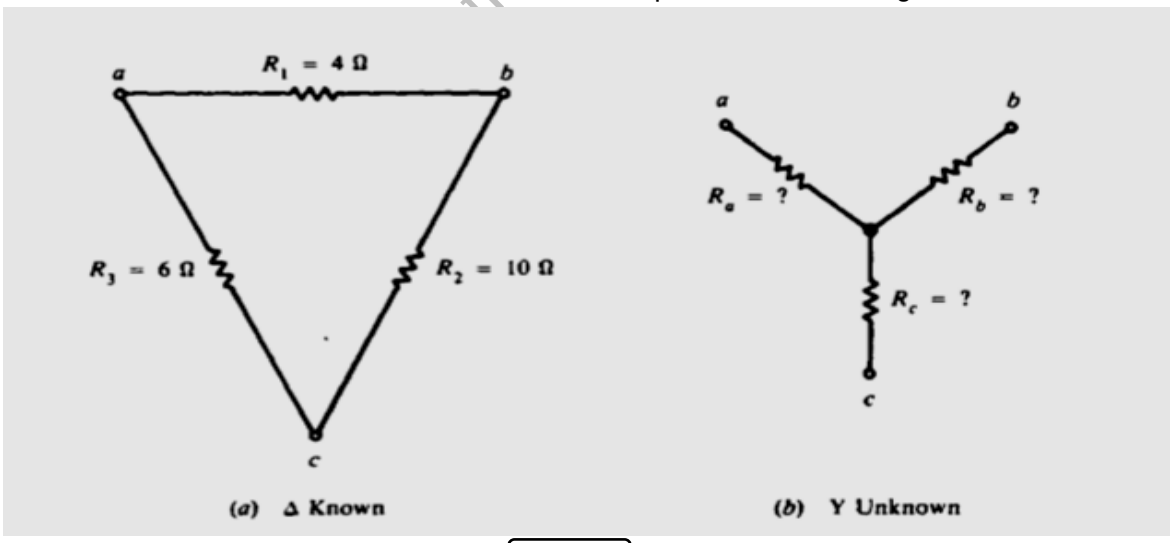
UNIT – I

1 Given V_A = 58 V, V_B = 10 V, R_1 = 4 Ohms, R_2 = 3 Ohms and R_3 = 2 Ohms as shown below , find all mesh currents and voltage drops in the circuit.



OR

2 Find values of resistances in star connection with respect to delta circuit given below.



UNIT – II

3 Draw and explain principle of operation of DC Generator using EMF equation.

OR

4 Explain principle of operation of DC Motors. Write torque equation.

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UNIT – III

5 Discuss principle of operation of three phase induction motor, draw slip-torque characteristics.

OR

6 Explain principle of operation of three phase alternator with its EMF equation.

PART – B

(Mechanical Technology)

UNIT – I

7 (a) What is meant by HAZ? Explain the working process of oxyacetylene welding.

(b) Discuss the classification of welding processes and their merits.

OR

8 (a) Differentiate between brazing and soldering. List out merits, demerits and applications of these two processes.

(b) What are the different types of flames produced is oxy-acetylene welding and explain in brief with neat sketches.

UNIT – II

9 (a) Differentiate between two stroke and four stroke engine.

(b) Briefly explain the comparison between closed cycle gas turbine and open cycle gas turbine.

OR

10 (a) Explain the working principle of Single stage reciprocating air compressor.

(b) What is the use of inter cooler in reciprocating compressors.

UNIT – III

11 Draw the block diagram of vapour compression refrigeration system and explain its working principle.

OR

12 What are the various earth moving machinery and mechanical handling equipments and their applications with simple sketches?

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