

B.Tech II Year I Semester (R15) Supplementary Examinations June 2017
ELECTRICAL & MECHANICAL TECHNOLOGY
 (Civil Engineering)

Time: 3 hours

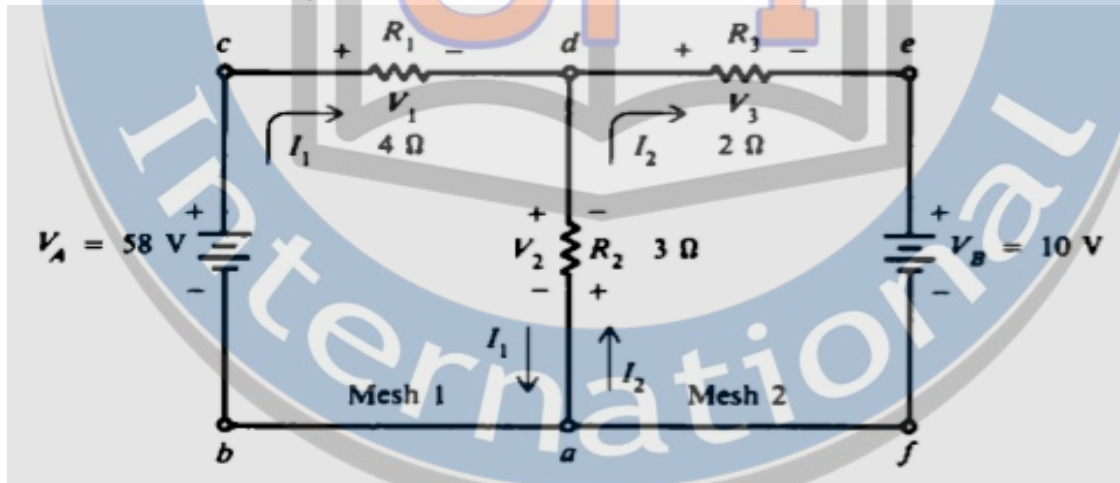
Max. Marks: 70

Answer all the questions
 (Use single answer booklet only)

PART – A
(Electrical Technology)

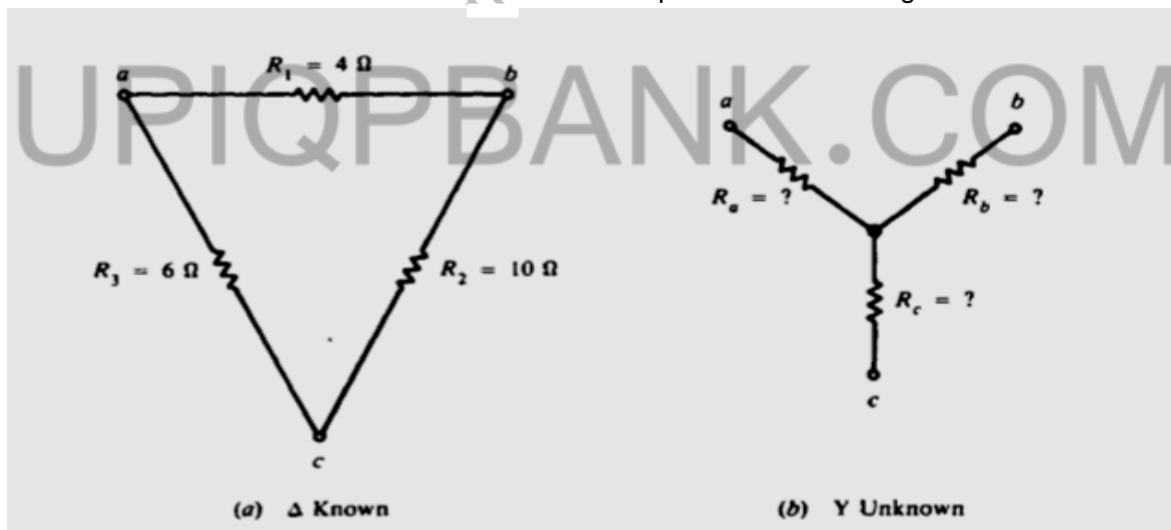
UNIT – I

- 1 Given $V_A = 58\text{ V}$, $V_B = 10\text{ V}$, $R_1 = 4\text{ Ohms}$, $R_2 = 3\text{ Ohms}$ and $R_3 = 2\text{ Ohms}$ 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.

Contd. in page 2

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 in 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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