Code: 9A02301 R09

B.Tech II Year I Semester (R09) Supplementary Examinations, May 2013

ELECTRICAL ENGINEERING & ELECTRONICS ENGINEERING

(Common to AE & ME)

Time: 3 hours Max. Marks: 70

All questions carry equal marks

A total of five questions are to be answered with at least two questions from each part

Use separate booklets for Part A and Part B.

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PART – A

1 (a) Write short notes on star-delta transformation.
(b) Briefly explain the types of passive elements.

2 (a) Derive the emf equation of DC generator.
(b) Explain the operation of 3-point starter used in DC motors with neat diagram.

3 (a) Explain the principle of operation of single phase transformers.
(b) Define and explain efficiency and regulation of single phase transformers.

4 (a) Explain the principle of operations of 3-phase induction motors.
(b) Explain the method of finding regulation of an alternator by synchronous impedance method.

PART - B

5 (a) Draw the energy band diagram of p-n diode for no bias, forward bias and reverse bias and explain.
(b) Explain the circuit diagram of a full-wave bridge rectifier and sketch the input and output wave forms.

6 (a) Describe a set up to obtain the output characteristics of a transistor in CE configuration. Indicate the various regions of operation on the output characteristics.
(b) What do you mean by feedback? Define positive and negative feedback. What are the advantages of negative feedback?
(c) What are the necessary conditions to sustain oscillations?

7 (a) Explain the principle of dielectric heating.
(b) Briefly describe the following applications of induction heating:
(i) Surface hardening of steel. (ii) Brazing.

8 (a) With the help of a block schematic, explain the working of a CRO and what are the applications of CRO.
(b) Derive the expression for the electrostatic deflection sensitivity in a CRT.

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