Code: 9A02304

R09

B.Tech II Year I Semester (R09) Supplementary Examinations, May 2013
BASIC ELECTRICAL & ELECTRONICS ENGINEERING
(Biotechnology)

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) State and explain Kirchoff's laws.
   (b) Explain any one passive element in detail.

2 (a) Define and derive the expression for average value of a sinusoidal voltage wave form.
   (b) Show that power dissipated by a pure inductive circuit excited by a sinusoidal voltage source in zero.

3   Derive the relation between phase and line values of a 3-phase balanced delta connected system with neat phasor diagram and also derive the expression for power in a 3-ϕ balanced delta connected systems.

4 (a) Explain the characteristics of DC generators.
   (b) Explain the principle of operation of 3-phase induction motors.

PART - B

5 (a) What is a PN junction diode? Draw and explain the v – i characteristics of a junction diode when it is as forward biased and reverse biased.
   (b) Draw and explain the principle of operation of half wave rectifier.

6 (a) Explain the input and output characteristics of a transistor in CE configuration.
   (b) What are the necessary conditions for an oscillator to give sustained oscillations?

7 (a) Explain the basic principle of operation of dielectric heating.
   (b) What is welding? What is meant by resistance welding?

8 (a) Explain the principle of operation of cathode ray tube.
   (b) Derive the expression for electrostatic deflection sensitivity of CRT.

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