**Code: 9A02301**

**SS**

B.Tech II Year I Semester (R13) Regular & Supplementary Examinations December 2015

**ELECTRICAL ENGINEERING & ELECTRONICS ENGINEERING**

(Computer Science and Engineering)

Time: 3 hours Max. Marks: 70

(Minimum of two questions from each part should be chosen for answering FIVE questions)
All questions carry equal marks

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**PART – A**

(Electrical Engineering)

1 (a) Explain the differences between series and parallel circuits with suitable examples.
(b) Derive the Delta – Star transformation for a resistive network.

2 (a) From fundamentals, derive the EMF equation of a DC generator.
(b) Derive the torque equation of a DC motor.

3 (a) Derive the EMF equation of a transformer.
(b) What are the various losses in the transformer? Explain briefly.

4 (a) Define the synchronous reactance and synchronous impedance. And explain the determination of voltage regulation by synchronous impedance method.
(b) What is meant by slip speed and slip in an induction motor?

**PART – B**

(Electronics Engineering)

5 (a) Explain the working principle of a bridge rectifier with neat diagram and waveforms. Derive the expression for efficiency of rectification.
(b) A half wave rectifier, having a resistive load of 1000 Ω rectifies an alternating voltage of 325 V peak value and the diode has forward resistance of 100Ω. Calculate: (i) DC power output. (ii) Efficiency of the rectifier.

6 (a) Explain transistor as a current controlled device.
(b) Explain the operation of SCR during forward and reverse bias.

7 (a) Explain the principle of dielectric heating and applications.
(b) What are the merits and demerits of direct type of induction furnace?

8 (a) Explain electro static deflection sensitivity in CRT.
(b) What are the front panel controls of CRO? Explain.

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