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Name.....

Reg. No.....

FIRST SEMESTER M.TECH. DEGREE EXAMINATION, DECEMBER 2013

Power Electronics and Drives.

EPD/EPE 10 103—ANALYSIS OF POWER ELECTRONIC CIRCUITS—I

Time : Three Hours Maximum : 100 Marks

Answer any **five** *questions, by choosing at least* **one** *question from each module.*

Module I

1. (a) Explain the operation of power diode with RC load and desire the capacitor voltage. (10 marks)

   (b) Explain the working of GTO thyristor with diagram. (10 marks)

2. (a) Explain the operation of UJT triggering and its characteristics. (10 marks)

   (b) Explain resonant pulse commutation of thyristor with necessary circuits and waveforms. (10 marks)

Module II

3. (a) Explain the operation of Three-phase Half-wave converter with circuit diagram and waveforms. (10 marks)

   (b) Explain the operation of single-phase dual converters with necessary diagrams. (10 marks)

4. (a) Explain the operation of two-quadrant transistorized chopper drive with circuit diagram. (10 marks)

   (b) Explain the operation of Boost regulator with diagrams and waveforms and derive the expression for peck to peak ripple current and ripple voltage. (10 marks)

Module III

5. Explain the working of 3-phase full wave controlled with R-load using circuit diagram and waveforms. (20 marks)

6. Explain the operation of 3-phase to 3-phase cyclo converter using necessary circuit diagram and waveforms. (20 marks)

Turn over

Module IV

7. Explain the working of various PWM techniques with circuit diagrams. (20 marks)

8. Explain the operation of :

   (a) Variable DC link inverter.

   (b) Boost inverter.

   with necessary diagrams.

(10 + 10 = 20 marks)