

D 32790

Name.....

Reg. No.....



FIRST SEMESTER M.TECH. DEGREE EXAMINATION, JANUARY 2013

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

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 LC and RLC loads. (10 marks)
- (b) Explain the operation of single phase half wave bridge rectifier with a typical load and derive its RF, TOF and DF. (10 marks)
2. (a) Explain the impact of C-filter on 3 phase bridge rectifier operation. (10 marks)
- (b) Explain the characteristics of IGCT. (10 marks)

Module II

3. (a) Distinguish between voltage commutated and current commutated chopper. (10 marks)
- (b) Distinguish between continuous conduction and discontinuous conduction. (10 marks)
4. (a) Explain current limit control in detail. (10 marks)
- (b) With a typical example, explain the design of LC filter. (10 marks)

Module III

5. Compare ON-OFF, Phase and sequence control. (20 marks)
6. (a) Explain the working of single-phase to single-phase cycloconverter with R load. (10 marks)
- (b) Analyze the operation of 3-phase to 1-phase cycloconverter. (10 marks)

Module IV

7. (a) Explain the working of single-phase full bridge inverter. Comment on its HF, THD and DF. (10 marks)
- (b) Distinguish between single pulse and multiple pulse PWM techniques. (10 marks)
8. Write notes on :
 - (a) Harmonic reduction. (10 marks)
 - (b) Variable DC link inverter. (10 marks)