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Name...

Reg. No..

FIFTH SEMESTER B.TECH. (ENGINEERING) DEGREE EXAMINATION, OCTOBER 2011

AI 09 505—POWER ELECTRONICS

(2009 Admissions)

Time : Three Hours

Maximum : 70 Marks

Part A

All questions compulsory.
Each question carries 2 marks.

1. What is a Triac ?

2. Define Power Factor. What is the desirable value for it ?

3. What is an IGBT ?

4. What is a DC chopper ?

5. Draw the block diagram of the UPS.

(5 × 2 = 10 marks)

Part B

Answer any four questions.
Each question carries 5 marks.

6. Briefly describe the structure of a thyristor.

7. Explain the operation of a Silicon Controlled Rectifier.

8. How to improve the power factor of a single phase and three phase converters ?

9. Explain the vector control of induction motor.

10. Explain the principle of operation of a Step Down chopper.

11. Design a simple drive circuit for a Power BJT.

(4 × 5 = 20 marks)

Part C

Answer any four questions.
Each question carries 10 marks.

12. (a) Explain the structure and operation of a MOS Controlled thyristor (MCT) ?

(Or)

(b) Discuss the static and dynamic characteristics of a GTO.

Turn over

13. (a) Explain the design of a Single phase and three phase converter circuit.

(*Or*)

(b) Discuss the design of a AC voltage controller circuit.

14. (a) Explain the principle of operation of a MOSFET/IIGBT chopper.

(*Or*)

(b) Explain in detail about the Mc-Murray Bedford inverter.

15. (a) With neat sketch, explain the operation of a :

(i) Switched Mode Power Supply.

(ii) Buck Boost Regulator.

(*Or*)

(b) Explain the applications of Microprocessors and Micro controllers in the control of Power Electronic circuits.

(4 × 10 = 40 marks)