ANNA UNIVERSITY OF TECHNOLOGY, COIMBATORE

B.E. / B.TECH. DEGREE EXAMINATIONS : NOV / DEC 2011

REGULATIONS : 2008

THIRD SEMESTER

080120013 - ELECTRICAL DRIVES AND CONTROLS

(COMMON TO MECHANICAL / CHEMICAL / PRODUCTION ENGG.)

Time : 3 Hours **Max.Marks : 100**

PART - A

(10 x 2 =20 MARKS)

ANSWER ALL QUESTIONS

1. What are the basic elements of an electric drive?
2. Give some examples for pulsating loads.
3. Draw the speed-torque characteristics of a constant power load.
4. What is the significance of regenerative braking?
5. What is the difference between 3-point and 4-point starters?
6. Briefly explain how a dc shunt motor takes high starting current.
7. What are the applications of a dc series motor?
8. What are the commonly used power electronic devices for controlled rectifiers?
9. What is the significance of Volt/Hz. control?
10. Define firing angle of a power electronic switching device.

PART - B

(5 x 16 = 80 MARKS)

ANSWER ALL QUESTIONS

11. (a) Derive an expression for temperature rise of an electrical machine with time and hence plot heating curve.

(OR)

(b) Describe the various aspects involved in selection of power rating for electric drives.

12. (a) Explain speed-torque characteristics of a drive in terms of four-quadrant operation.

(OR)

(b) Explain the operation of different braking methods applied to dc motors.

13. (a) Explain the working of a 3-point starter.

(OR)

(b) Describe in detail the various starting methods of 3-phase squirrel cage Induction motor.

14. (a) Explain field and armature control methods as applied to speed control of a dc shunt motor.

(OR)

(b) Describe the working of chopper control of separately excited dc motor.

15. (a) Explain the working of slip-power recovery scheme of a slip-ring induction motor.

(OR)

(b) Describe the working of a three-phase inverter fed three-phase induction motor.

*******THE END*******