BTINC603: Power Electronics & Drives

Chapter 1:

1) With the help of neat waveforms explain reverse recovery characteristics of Power Diode.

2) Discuss switching characteristics of Power BJT

3) With the help of neat waveforms explain characteristics of Power MOSFET

4) Discuss switching characteristics of Power MOSFET

5) Discuss switching characteristics of IGBT

6) Give the comparison between different types of power diodes

7) With the help of neat diagram explain working & requirements of general firing circuit

Chapter 2:

1) What is electrical drive? Draw a neat block diagram of electrical drive system& explain its different sections in brief.

2) Explain dynamic & steady state stability of an electrical drive system

3) Discuss in detail four quadrant operation of motor

4) Write a note on load equalization

5) Discuss in detail dynamics of electrical drive system

Chapter 3:

1) Define the terms semi converter, full converter, dual converter
2) With the help of neat circuit diagram explain operation of single-phasesemi converter drive.
3) With the help of neat circuit diagram explain operation of single-phase full converter drive.
4) With the help of neat circuit diagram explain operation of single-phase dual converter drive.
5) With the help of neat circuit diagram explain operation of three phase semi converter drive.

6) With the help of neat circuit diagram explain operation of three phase full converter drive.
7) With the help of neat circuit diagram explain operation of three phase dual converter drive.
8) Discuss in detail closed loop control of DC drive

Chapter 4:

1)Draw a neat circuit diagram of single phase AC voltage control (ON-OFF control) & explain its operation with the help of neat waveforms

2)Draw a neat circuit diagram of single-phase AC voltage control (Phase control) & explain its operation with the help of neat waveforms

3) Draw a neat circuit diagram of single-phase Step-down AC voltage controller& explain its operation with the help of neat waveforms

4) Draw a neat circuit diagram of single-phase Step-Up AC voltage controller& explain its operation with the help of neat waveforms

5) Draw a neat circuit diagram of three phase Step-down AC voltage controller& explain its operation with the help of neat waveforms

6 Draw a neat circuit diagram ofthree phase Step-Up AC voltage controller& explain its operation with the help of neat waveforms

7) What is cyclo-converter? What are its types? List out its application

8) What is AC Voltage controller? What are its control techniques? List out its application

Chapter 5:

1) Explain starting, braking & Speed control of three phase induction motor
2) With the help of neat circuit diagram explain stator voltage control for speed control of induction motor drives
3) With the help of neat circuit diagram explain frequency control for speed control of induction motor drives
4) With the help of neat circuit diagram explain rotor voltage control for speed control of induction motor drives
5) With the help of neat circuit diagram explain voltage& frequency control for speed control of induction motor drives
6) Discuss in detail current control technique
7) Discuss in detail Multiquadrant operation of induction motor drives fed from Voltage Source Inverters

8) Write notes on Static Scherbius drive and Static Kramer drives
9) Explain in detail Static rotor resistance control method, static slip power recovery control-
10)

Chapter 6:

1) Explain any one technique of Speed control of Synchronous motor

2) Explain in detail adjustable frequency operation of synchronous motors
3) What are the different principles of synchronous motor control? Explain
4) Explain self-controlled synchronous motor drive using load commutated thyristor inverter
5) Discuss in detail voltage source inverter drive with open loop control
6) Explain self-controlled synchronous motor with electronic communication
7) Explain closed loop speed control of Induction Motor