

M.E. DEGREE EXAMINATIONS: NOV/DEC 2010

Third Semester

POWER ELECTRONICS AND DRIVES

PED570: PWM Converters and Applications

Time: Three Hours

Maximum Marks: 100

Answer ALL Questions:-

PART A (10 x 2 = 20 Marks)

1. List out the applications of voltage source converters.
2. What is modulation index and write the rms output voltage of single pulse width modulation.
3. What is meant by switching losses in a converter.
4. Give any four practical devices in converter?
5. Define DC voltage Regulation
6. What is the role of multi level concept in converter?
7. What is power factor compensation?
8. How the current and torque ripples affect the inverter fed drives?
9. List the various sources of Reactive power.
10. What is harmonic current compensation?

PART B (5 x 16 = 80 Marks)

11. a) Explain the various pulse modulation techniques for bridge converters.
(OR)
b) Explain the AC/DC and DC/AC Power converters with neat block diagram.
12. a) Explain any three advanced PWM Techniques used in converters.
(OR)
b) Write short notes on
 - (i) Space vector based PWM.
 - (ii) Bus Clamping PWM.
13. a) Draw and explain the dynamic model of PWM converter
(OR)
b) With neat sketch explain the constant V/F induction motor drive.
14. a) Estimate the current and torque ripple of inverter fed drive.
(OR)
b) Explain any two methods of power factor compensation in line side converters?
15. a) Explain in detail how the power quality can be improved by using active power filters.
(OR)
b) How reactive power compensation improves power quality? Explain any one technique with neat sketch.