Register Number……

M.E., DEGREE EXAMINATIONS: NOV/DEC 2012

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. Draw the input line current waveform of 1- phase AC/DC converter for a firing angle of 90°.
2. Compare VSI and CSI.
3. List the various types of PWM techniques.
4. What are the drawbacks of dead time in inverter?
5. Which type of power device is used in high switching frequency PWM inverter and why?
6. Compare IGBT and MOSFET.
7. List the advantages of multilevel converters.
8. What are the advantages of V/f control in induction drive?
9. Write a Fourier series expression for output voltage of 1- phase bridge inverter.
10. What is the role of reactive power in transmission?

PART B (5x16 = 80 Marks)

11. a) Explain the 180°conduction mode 3- phase inverter with Δ connected load.

(OR)

b) Explain the operation and advantages of 12 pulse AC/DC converter.

12. a) What are the causes for switching losses in power converters? Describe any two methods of reduce it.

(OR)

b) Explain the SVPWM technique for 3- phase inverter.

13. a) Derive dynamic modeling equation of 3-phase DC/ AC converter fed AC motor drive.

(OR)

b) Describe the operation of 9 level cascaded multilevel inverter.

14. a) What are the causes for torque ripple in inverter fed induction motor drive? Describe any one method of minimizing it.

(OR)

b) Discuss any two methods of power factor compensation in 3- phase controlled rectifier.

15. a) Explain in detail about application of multilevel converter in reactive power compensation.

(OR)

b) List the methods of mitigating the harmonics current. Describe any two methods of harmonics current compensation.

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