

Total No. of Questions : 12]

SEAT No. :

P1976

[Total No. of Pages : 3

[5254]-85
B.E. (Electronics)
ADVANCED POWER ELECTRONICS (Elective -I)
(2008 Pattern)

Time : 3 Hours]

[Max. Marks : 100

Instructions to the candidates:

- 1) *Answer 3 questions from section I and 3 questions from section II.*
- 2) *Answer to the two sections should be written in separate books.*
- 3) *Neat diagrams must be drawn wherever necessary.*
- 4) *Figures to the right indicate full marks.*
- 5) *All questions carry equal marks.*
- 6) *Assume suitable data if necessary.*

SECTION - I

- Q1)** a) Define power quality. State various power line disturbances and their sources. **[10]**
- b) Explain the need of 12 pulse converter in industrial application. **[8]**

OR

- Q2)** a) State and explain various preventive and nullifying techniques for power line disturbances. **[10]**
- b) Explain double sided PWM converter system with its circuit diagram, simplified block diagram. **[8]**
- Q3)** a) Explain with block diagram any one method of vector control of induction motor. **[8]**
- b) Explain with a block diagram, the speed control of DC motor using microcontroller. **[8]**

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OR

- Q4)** a) Explain with block diagram adaptive control of induction motor. [6]
- b) What are DC drives? Explain with circuit diagram, working of DC motor speed control technique by using microcontroller. Comment on P.F., Torque-Speed characteristics. [10]
- Q5)** a) What are multilevel inverters? Explain the circuit diagram, switching of multilevel inverter. State its advantages & disadvantages. [10]
- b) Explain the need of selective harmonic elimination technique in multilevel inverters. [6]

OR

- Q6)** Write a short note on any two: [16]
- a) Space vector modulation
- b) Bi directional converters
- c) Adaptive control technique
- d) Z-source inverter

SECTION - II

- Q7)** a) What is resonant converter? Explain with circuit diagram and waveform working of ZVS. Comment on P.F. State its advantages & disadvantages. [10]
- b) Explain bi-Directional power supplies. [4]
- c) Explain with diagram synchronous rectifier. [4]

OR

Q8) a) Explain with diagram SLR resonant converter. **[10]**

b) Explain low dropout regulator. **[4]**

c) Compare linear, switched mode and resonant converter. **[4]**

Q9) a) Explain in brief grid connected photovoltaic energy conversion system. **[8]**

b) Explain control of wind turbine generator. **[8]**

OR

Q10)a) Explain in detail about different configurations of grid connected PV systems. **[8]**

b) What is HVDC? Explain in detail. **[8]**

Q11)a) Explain the need of battery for photovoltaic systems. **[8]**

b) Explain FACTS in detail. **[8]**

OR

Q12)Write short note on: **[16]**

a) Energy Audit

b) Power quality problems

c) Traction Drives

