Total No. of Questions : 12]

SEAT No. :

P2011

[Total No. of Pages : 3

[4759] -114
B.E. (Electronics)
ADVANCED POWER ELECTRONICS
(2008 Course) (Semester - I) (Elective - I)

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

Instructions to the candidates:

1) ***Answer any three questions from each section.***
2) ***Answers to the two sections should be written in separate answer 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.***
7) ***Use of logarithmic tables slide rule, moillier charts, electronic pocket calculator and steam tables is allowed.***

SECTION - I

Q1) a) What are converters? Explain with circuit diagram working of single phase series full converter for level load. **[10]**

b) What is the need of cooling in industries? Explain. **[6]**

OR

Q2) a) Explain the need of 12-pulse converter in industries? Draw suitable circuit diagram & W/F s for the same- **[10]**

b) What is power factor conditioning of rectifier diode? Explain. **[6]**

Q3) a) What are DC-drives? Explain with diagram how will you control the speed of DC motor using Microcontroller. **[12]**

b) Why cyclo converters are not preferred for Large AC power control applications? Comment on P.F. **[6]**

OR

P.T.O.

Q4) a) Explain Double sided PWM converter with circuit diagram & comment on p.f. **[8]**

b) What are AC drives? Explain with neat block diagram, speed control technique of 3ϕ I.M by using $\frac{v}{f}$ Method. Comment on Tq Vs N characteristics. **[10]**

Q5) a) What is soft switching in resonant converter? Explain with diagram & waveforms, working of ZVS resonant converter with suitable load. State its limitations. **[10]**

b) What are different types of harmonic elimination technique. **[6]**

OR

Q6) a) What are multi level inverters? Explain with circuit diagram & comment on p.f. **[8]**

b) With the help of block diagram, explain PLL control of DC drives & state its advantages. **[8]**

SECTION - II

Q7) a) What are low drop out regulators? Explain. **[6]**

b) Compare linear, switched mode & Resonant converters. **[6]**

c) Advanced modulation technique. **[6]**

OR

Q8) a) What is the role of power electronics in renewable energy? Explain with diagram variable wind energy conservation system. **[10]**

b) Explain with circuit diagram & waveforms working of ZCS system. **[8]**

Q9) a) What is power quality? Explain different types of power line disturbances, preventing & nullifying measurement techniques & comment on power related quality issues. **[10]**

b) What are solar powered drives? Explain. **[6]**

OR

Q10)a) What is HVDC? Explain. **[8]**

b) What is the need of energy audit? Explain. **[8]**

Q11)a) What are synchronous rectifier? Explain. **[8]**

b) What is FACTS [Flexible AC X^{ssion} system]. Explain in detail. **[8]**

OR

Q12) Write short notes on any three. **[16]**

a) Photo voltalic energy

b) Traction drives

c) H.F. heating

d) Battery charger circuit

e) Matrix

f) Adaptive control technique.

☼ ☼ ☼