Total No of Questions: [12] *SET NO. :*

[Total No. of Pages : 02]

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B.E(Electronics) 2008 (Advance Power Electronics)

Time: 3 Hours *Max. Marks : 100*

Instructions to the candidates:

1) ***Answers to the two sections should be written in separate answer books.***
2) ***Answer any three questions from each section.***
3) ***Neat diagrams must be drawn wherever necessary.***
4) ***Figures to the right side indicate full marks.***
5) ***Use of Calculator is allowed.***
6) ***Assume Suitable data if necessary***

SECTION I

Q1)	a)	Explain with circuit diagram, working of three phase IGBT based PWM rectifier with suitable load.	[10]
	b)	Explain the need of 12 pulse converters in industries?	[08]
		OR	
Q2)	a)	What is power factor conditioning of rectifier diode? Explain	[08]
	b)	What is the effect of reactive power over the output operation of converter s?	[06]
	c)	Explain the need of double sided converters in brief.	[04]
Q3)	a)	What is PLL? Explain with block diagram the speed control techniques of DC motor using PLL for varying load conditions. Comment on torque –speed characteristics	[10]
	b)	Justify why cycloconverters are not preferred for ac drive applications	[04]
		OR	
Q4)	a)	What are AC drives? Explain with block diagram speed control technique of 3-phase Induction motor by using V/F. Comment on torque, slip & speed characteristics	[10]
		Explain the need of microcontroller based drives in industry with relevant justification	
	b)	Explain the need of microcontroller based drives in industry with relevant justification	[06]
Q5)	a)	What is soft switching in resonant converters? Explain with diagram & waveform working of ZVS resonant converters with circuit diagram & waveforms. State its limitations.	[10]
	b)	What is delta modulation? Explain in brief	[06]
		OR	
Q6)	a)	What are multilevel inverters? Explain with diagram working of multilevel inverters in industries. Comment on power factor.	[10]
	b)	What are synchronous rectifiers? Explain in brief.	[06]
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SECTION II

Q7)		Write short notes on any three 1) Z-Source inverters2) Bidirectional power supplies 3) Low drop out regulators 4) SLR resonant converters 5) Advanced modulating techniques	[16]
		OR	
Q8)	a)	Explain with principle, circuit diagram & waveforms working of ZCS ? State its limitations	[10]
	b)	Compare linear, switched mode, & resonant converters	[06]
Q9)	a)	What is power quality? Explain different types of power line disturbances preventive & nullifying measurement techniques & comment on power related quality issues	[10]
	b)	Explain the need of cooling in industries	[06]
		OR	
Q10		Write short notes on any three HVDC 2) Electronic ballast 3) HF heating 4) dv/dt,di/dt ratings 5) Role of wind energy in power electronics industries.	[16]
Q11	a)	What is energy audit? Explain its need in industries.	[08]
	b)	What is solar Power conditioning? Explain	[08]
		OR	
Q12	a)	What are traction drives? Explain with block diagram in brief with its applications	[08]
	b)	What are matrix converters? Explain	[08]