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Total No. of Questions : 12] P1869				SEAT No. :	
PI	869	,		[Total No. of Pages:	
			[5059]-	180	
			B.E. (E&	&Tc)	
MI	CRO) ELEC	TROMECHANICAL S	SYSTEM SYSTEM AND ON CHIP	
			(2008 Pat	ttern)	
Time	: 3 H	ours]	·	[Max. Marks: 100	
Instr			candidates:		
	1)		any 3 questions from each se		
	2)		-	d 3 questions from section - II.	
	<i>3) 4)</i>		s to the two sections should be grams must be drawn wherev	•	
	<i>5</i>)		9	mollier charts, electronic pocket calculato	
		and steam tables is allowed.			
	<i>6)</i>	Assume	suitable data, if necessary.		
			SECTIO	<u>N - I</u>	
Q1)	a)	Define transducer. Draw block schematics of transducers and explait transduction with respect to signal domains. [8]			
	b)			gure of merits are used for specifying e performance of microsystem? [8]	
			OR		
Q2)	a)	What is surface micromachining? Explain is		? Explain it with respect to, [8	
		i) Ba	asic process sequence		
		ii) M	laterials & etching process	ses used	
	b)	-	n metal film thermoresisto ecessary expressions.	or and semi conducting thermoresistor [8	
Q3)	a)	Write a short note on. [10]			
			ulk micromachined pressu arface micromachined pre		

Define Lorentz force. Explain Hall effect principle and its modes of

[8]

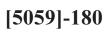
b)

operation.

OR

Q4) a)	Explain the principle of piezoelectric transducer with respect to [9]			
b)	 i) Definition ii) Structure iii) Peizoelectric materials. iv) Crystal model showing charge generation. Explain capacitive accelerometer with respect to 			
	i) Working principle.ii) Fabrication aspects.iii) Packaging aspects.iv) Electronic readout ranges.			
Q5) a)	Explain the transduction principle and sensing characteristics of voltan sensors and potentiometric sensors.			
b)	What are the material requirements and fabrication techniques for biomedical microsystems? [8]			
	OR			
Q6) a)	Explain any four of the following with respect to high aspect ratio micromachining. [16]			
	 i) Poros silicon ii) Deep reactive Ion etching iii) Lasor micromachining iv) Focused Ion beam micromachining v) Powder blasting. 			
	SECTION-II			
Q7) a)	What are the applications of microsystems? [8]			
b)	Enlist various packaging technologies and explain each in detail [10]			
	OR			
Q8) a)	Explain IC-fabrication technology in detail for, [9]			
	i) Silicon bulk micromachining			
	ii) Silicon surface micromachining.			
	iii) LIGA.			
[5059]-	180 2			

b)	Explain 'Design and Testing of microsystem' with respect to. i) Design methodology ii) CAD tools for microsystems. iii) Testing issues			
Q9) a) b)	What are the pros and cons of behavioural synthesis? [8] Explain abstraction levels associated with synthesis tools. OR			
Q10) a)	Explain design flow with respect to generic methodology problems and alternative solution for layout synthesis. [8]			
b)	How the standard cell approach is good solution for layout synthesis problem? [8]			
Q11) a)	Explain any two of the following routing techniques i) Path Search methods ii) Row based routing iii) The LEGAL algorithm.			
b)	Explain various steps of Hardware/software codesign. www.sppuonline.com [8]			
Q12) Write a short note on [16]				
i)	Design for Testability			
ii)	Built in self Test			



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