Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

M. E. - SEMESTER – IV • EXAMINATION – SUMMER • 2014

Subject code: 744201 Date: 04-06-2014

Subject Name: Silicon on Insulator

Time: 02:30 pm - 05:00 pm Total Marks: 70

Instructions:

1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

Q.1	**(a)**	What are the issues of conventional Bulk CMOS Technology? How can SOI help to eliminate these issues?	**07**
	(b)	Explain the two types of SOI structures with necessary figures.	**07**
Q.2	**(a)**	With example explain the use of SOI technology in different industries.	**07**
	(b)	What is Back Gate Bias? Explain its effect on performance of SOI Devices.	**07**
		OR	
	(b)	Explain the Single electron transistor.	**07**
Q.3	**(a)**	What is Narrow Channel? Explain its Effects on SOI Devices.	**07**
	(b)	What is History Effect explain with respect to SOI?	**07**
		OR	
Q.3	**(a)**	Explain the Dynamic Threshold MOS.	**07**
	(b)	Draw and explain the Single-Stage Folded-Cascode Op Amp with respect to SOI.	**07**
Q.4	**(a)**	With Necessary figure explain the nMOS and pMOS Implemented in SOI Technology.	**07**
	(b)	Discuss the various steps of SOI fabrication process.	**07**
		OR	
Q.4	**(a)**	What are the basic circuit issues for SOI circuit? Explain in detail.	**07**
	(b)	Explain the hot carrier effect for SOI.	**07**
Q.5	**(a)**	What is strong inversion Kink effect? Explain with respect to PD SOI.	**07**
	(b)	With necessary figures explain Continuous Time SOI Filter.	**07**
		OR	
Q.5	**(a)**	Explain SRAM with respect to SOI.	**07**
	(b)	Write a short note on Single stage LNA.	**07**

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