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) (b)	With example explain the use of SOI technology in different industries. What is Back Gate Bias? Explain its effect on performance of SOI Devices. OR	07 07
	(b)	Explain the Single electron transistor.	07
Q.3	(a) (b)	What is Narrow Channel? Explain its Effects on SOI Devices. What is History Effect explain with respect to SOI? OR	07 07
Q.3	(a) (b)	Explain the Dynamic Threshold MOS. Draw and explain the Single-Stage Folded-Cascode Op Amp with respect to SOI.	07 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. OR	07
Q.4	(a) (b)	What are the basic circuit issues for SOI circuit? Explain in detail. Explain the hot carrier effect for SOI.	07 07
Q.5	(a) (b)	What is strong inversion Kink effect? Explain with respect to PD SOI. With necessary figures explain Continuous Time SOI Filter.	07 07
		OR	
Q.5	(a) (b)	Explain SRAM with respect to SOI. Write a short note on Single stage LNA.	07 07
