

Seat No.: \_\_\_\_\_

Enrolment No. \_\_\_\_\_

**GUJARAT TECHNOLOGICAL UNIVERSITY**  
**ME – SEMESTER IV (NEW) – • EXAMINATION – SUMMER 2016**

**Subject Code: 2744201**

**Date:04/05/2016**

**Subject Name: SILICON ON INSULATOR**

**Time:10:30 am to 01:00 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)** Compare SOI and CMOS technology with suitable examples and list advantages and disadvantages of both. **07**
- (b)** Discuss in detail: SOI Fabrication Process. **07**
- Q.2 (a)** Explain in detail with necessary diagram Single Electron Transistor. **07**
- (b)** Explain in brief DTPT and ADTPT. **07**
- OR**
- (b)** Explain in brief with necessary diagrams: SOI CPL and CSVL Circuits. **07**
- Q.3 (a)** Explain in detail: SOI MTCMOS logic circuit. **07**
- (b)** What are the basic circuit issues for SOI circuit? Explain in detail. **07**
- OR**
- Q.3 (a)** What is strong inversion Kink effect? Explain with respect to PD SOI. **07**
- (b)** Explain with necessary figures: Continuous Time SOI Filter. **07**
- Q.4 (a)** Draw and explain the structure of SOI nMOS and pMOS. **07**
- (b)** Explain in brief Race Problems in SOI Dynamic Logic Circuits. **07**
- OR**
- Q.4 (a)** Explain SRAM with respect to SOI. **07**
- (b)** Write a short note on Single stage LNA. **07**
- Q.5 (a)** Discuss in brief in Noise in SOI Circuit. **07**
- (b)** Write a short note on PD SOI and FD SOI. **07**
- OR**
- Q.5 (a)** Write a short note on DTMOS. **07**
- (b)** What is Back Gate Bias? Explain its effect on performance of SOI Devices. **07**

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