Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

ME - SEMESTER– III • EXAMINATION – SUMMER 2015

Subject Code: 734202 **Date: 02/05/2015**

Subject Name: IC Fabrication Technology

Time: 2:30 pm to 5:00 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)**	Explain the process of oxidation for IC manufacturing.	**07**
	(b)	What is E beam lithography? Explain its operation in detail.	**07**
Q.2	**(a)**	Which are the varios sources of Molecular contaminant? Explain each in detail.	**07**
	(b)	Explain the steps of Wafer fabrication.	**07**
		OR	
	(b)	What are the effects of sodium contamination on the pMOS and nMOS?	**07**
Q.3	**(a)**	Explain the importance of etching? Discuss anisotropic etching.	**07**
	(b)	What are the do's and don'ts of clean room.	**07**
		OR	
Q.3	**(a)**	Explain the resistive heating technique to get uniform deposition of Al film on silicon substrate.	**07**
	(b)	Explain need of shallow junction in smaller geometry devices for VLSI Design?	**07**
Q.4	**(a)**	What are the different standards used for classification of clean room? Explain any one in detail.	**07**
	(b)	Discuss RF magnetron sputtering technique.	**07**
		OR	
Q.4	**(a)**	Why photolithography is required in every steps of fabrication? Explain the working of optical lithography.	**07**
	(b)	Compare Hot wall and Cold wall CVD techniques?	**07**
Q.5	**(a)**	List down different crystalline orientation for wafer and explain each in detail.	**07**
	(b)	What are the different types of wafer? How can we identify it.	**07**
		OR	
Q.5	**(a)**	Give the Comparison between Silicon and Germanium. Which is best suited for wafer fabrication.	**07**
	(b)	Explain the Deal-Grove model with necessary equations	**07**

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