Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE –SEM-VII .EXAMINATION – SUMMER 2015

Subject Code: 171706 **Date:**06/**05/2015**

Subject Name: Instrumentation for Nanotechnology

Time: 02.30PM-05.00PM **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 various ground connection topology.	**07**
	(b)	Explain need of development of electron microscopy.	**07**
Q.2	**(a)**	Define spatial resolution. How spatial resolution is improved in STM?	**07**
	(b)	What are the basic differences between SEM & TEM?	**07**
		OR	
	(b)	Why almost all the properties changes in Nano materials?	**07**
Q.3	**(a)**	Explain techniques to reduce capacitive coupled noise.	**07**
	(b)	Discuss various intrinsic noise sources.	**07**
		OR	
Q.3	**(a)**	Explain difference between safety ground & signal ground.	**07**
	(b)	Describe various techniques through which magnetic noise coupling can be eliminated.	**07**
Q.4	**(a)**	Describe various processes between electron beam & the sample.	**07**
	(b)	Give brief details about mathematical modeling of Nano instruments.	**07**
		OR	
Q.4		Discuss various noises affecting low level current measurement.	**14**
Q.5		Explain two wire & four wire current measurement techniques. Why four wire techniques improves accuracy in measurement?	**14**
		OR	
Q.5		Describe in brief: applications of AFM.	**14**

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