GUJARAT TECHNOLOGICAL UNI	IVERSITY
BE- VII th SEMESTER-EXAMINATION – MAY	/JUNE- 2012
ode: 171706	Date: 29/05/2012
ame: Instrumentation for Nanotechnology	

Subje Subje	ect c	ode: 171706 Date: 29/0 Jame: Instrumentation for Nanotechnology	5/2012
Time	: 02:	:30 pm – 05:00 pm Total Ma	rks: 70
1. 2. 3.	Atte Mal Figu	empt all questions. ke suitable assumptions wherever necessary. ares to the right indicate full marks.	
Q.1	(a)	Give reason, low level measurement requires considering electromagnetic interference in instrument design.	07
	(b)	Explain need of development of electron microscopy	07
Q.2	(a)	Describe, in brief, various processes between electron beam and the sample.	07
	(b)	Define spatial resolution. How spatial resolution is improved in STM.	07
	(b)	OR Explain various applications of TEM	07
Q.3	(a)	Describe in brief: applications of AFM.	14
03	(a)	OR Explain two wire and four wire current measurement techniques. Why	14
Q.J	(a)	four wire technique improves accuracy in measurement?	14
Q.4	(a)	Explain techniques through which magnetic noise at transmitter side can be reduced.	07
	(b)	Explain various ground connection topology. OR	07
Q.4	(a) (b)	List various noise sources. List various techniques to reduce noise. Explain the technique to eliminate error due to thermal EMF in low level voltage measurement.	07 07
Q.5	(a)	Discuss various noises affecting low level current measurement.	14
Q.5	(a)	OR Discuss issues and techniques related to low resistance measurement.	14
