Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–V(New) • EXAMINATION – WINTER 2016

Subject Code:2153901 **Date:24/11/2016**

Subject Name:Fabrication of Nano- devices

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.**

			MARKS
Q.1		**Short Questions**	**14**
	1	Write application of nano device any two.	
	2	Define lithography.	
	3	Define Bio-sensor	
	4	Define p-n junction diode.	
	5	What is shotkey diode?	
	6	What is 2D nano materials?	
	7	Give the full form of MEMS.	
	8	What is quantum confinement?	
	9	Define quantum dot.	
	10	Give full form of NEMS.	
	11	Define quantum well.	
	12	Give full form of QLED	
	13	Define direct band gap.	
	14	Explain NDR region in resonance tunneling transistor?	
Q.2	**(a)**	What is Schottky diode?	**03**
	(b)	Discuss molecular motor.	**04**
	(c)	Explain nano manipulation of materials.	**07**
		OR	
	(c)	Explain protein biosensor.	**07**
Q.3	**(a)**	What is CNT base transistor?	**03**
	(b)	Discuss characteristics of resonance tunneling transistor.	**04**
	(c)	Write a short note on electrochemical type gas sensor.	**07**
		OR	
Q.3	**(a)**	What is the classification of nano-computers?	**03**
	(b)	Discuss light harvesting antennas.	**04**
	(c)	Explain MOS type gas sensor.	**07**
Q.4	**(a)**	Describe nano-sensors.	**03**
	(b)	Describe the principle of catalytic type gas sensor.	**04**
	(c)	Write a short note on nanorobots.	**07**
		OR	
Q.4	**(a)**	Describe importance of quantum dot.	**03**
	(b)	Explain working principle of SET.	**04**
	(c)	Write a short note on resonance tunneling transistor.	**07**
Q.5	**(a)**	What is p-type and n-type MOSFET?	**03**
	(b)	Draw schematic diagram of CNFET.	**04**
	(c)	Write applications of single electron transistor.	**07**
		OR	
Q.5	**(a)**	What is photochemical molecular device?	**03**
	(b)	Write classification of nanodevices.	**04**
	(c)	Write a short note on DNA based biosensor.	**07**

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