Seat No.: _____ Enrolment No.

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–VIII(NEW) EXAMINATION – SUMMER 2019

Subject Code: 2183904 **Date:09/05/2019**

Subject Name: Nanosensors and Transducers

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	**(a)**	Define Transducers and its Types briefly.	**03**
	(b)	Write a short note on Nanosensors.	**04**
	(c)	Explain Nano electronics based sensing with five detailed examples.	**07**
Q.2	**(a)**	Explain Future Requirement of Nanotechnology in Industries.	**03**
	(b)	Describe Impact of Nanotechnology in Health and Wellness.	**04**
	(c)	Explain the Opportunities of Nanotechnology in Sensing.	**07**
		OR	
	(c)	Explain Electro transduction (One Dimensional Nanostructure Based Sensor, Liquid Gas Sensor Arrays and Label Free Biological Sensor Arrays).	**07**
Q.3	**(a)**	Define Magnetic Transduction.	**03**
	(b)	Explain Nano Based Sensing in Environmental Monitoring.	**04**
	(c)	Explain the processing of sensing device (Packaging, Workforce, Roadmap).	**07**
		OR	
Q.3	**(a)**	Define Mechanical Transduction.	**03**
	(b)	Describe Application of Nanosensing in Agriculture and Food Industries.	**04**
	(c)	Describe Enhancement in Specificity.	**07**
Q.4	**(a)**	Describe Spectroscopic Transduction.	**03**
	(b)	Describe Nanotechnology Based Sensing in Energy, Transportation and National Securities.	**04**
	(c)	Elaborate: Nanotechnology Enabled Solutions (Enhancement in Specificity)	**07**
		OR	
Q.4	**(a)**	Describe Electromagnetic Transduction.	**03**
	(b)	Explain Fabrication of Sensing Devices.	**04**
	(c)	Describe Nanophotonics Based Sensor with five Detailed Examples.	**07**
Q.5	**(a)**	Define Conducting Polymer.	**03**
	(b)	Explain Foundries for Sensing Devices.	**04**
	(c)	Explain the processing of sensing device (designing and modelling)	**07**
		OR	
Q.5	**(a)**	Explain Sensing System.	**03**
	(b)	Describe Standardization for Sensing Device.	**04**
	(c)	Elaborate: Future requirement of nanotechnology in sensing.	**07**

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