

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-III (New) EXAMINATION – WINTER 2018

Subject Code: 2133902
Date: 01/12/2018
Subject Name: Elements of Nanoscience and Nanotechnology-I
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)	What do mean by Atomic Manipulation in the field of nanotechnology.	03
	(b)	Define: Nanoscience and Nanotechnology.	04
	(c)	Write a short note on dip pen nanolithography.	07
Q.2	(a)	What do you mean by epitaxial nature in thin film?	03
	(b)	Write down various technique used in characterization of nanostructured material.	04
	(c)	Write a short note on history of nanotechnology.	07
		OR	
	(c)	Write a short note on electrodeposition.	07
Q.3	(a)	Give the name of various technique for Micro- and Nanofabrication.	03
	(b)	Draw the schematic representation of various types of carbon nanotubes.	04
	(c)	Write a short note on CVD method for synthesis of nanostructured materials with necessary figures.	07
		OR	
Q.3	(a)	Give the use of Nanotechnology in the medical implants and battery.	03
	(b)	Explain in short: Purification of Carbon Nanotubes.	04
	(c)	Describe the various applications of Carbon Nanotubes.	07
Q.4	(a)	Define: Nanoholes and photons in the vicinity of solar cell.	03
	(b)	Describe Optoelectronics Devices.	04
	(c)	Write a short note on DSSC Solar Cell.	07
		OR	
Q.4	(a)	Define: Nano electronics.	03
	(b)	Describe: Ball Milling.	04
	(c)	Write a short note on E-Beam lithography for formation of nanostructured devices.	07
Q.5	(a)	Give drawbacks of liquid Electrolyte used in nanostructured solar cell.	03
	(b)	What do you mean by Quantum Computers?	04
	(c)	Write down Environmental Applications of Nanotechnology.	07
		OR	
Q.5	(a)	Define: Nano robots.	03
	(b)	What do mean by Microelectromechanical systems (MEMS).	04
	(c)	Explain how nanotechnology will affect our life in the future, give your vision.	07
