

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-V (NEW) EXAMINATION – WINTER 2018****Subject Code:2153903****Date:16/11/2018****Subject Name:Application of Nanotechnology****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) Enlist the parameters which are to be checked while doing the process of Electrospinning.	03
	(b) Explain the working of Electrospraying.	04
	(c) Is carbon nanotubes suitable for tissue engineering? Justify	07
Q.2	(a) What are the advantages of Nano electrical and electronic devices?	03
	(b) What are actuators? And explain how they work.	04
	(c) What are Bio-MEMS? Explain its working, Structure and fabrication.	07
	OR	
	(c) Explain the structure and principle of EDLC.	07
Q.3	(a) Give the full form of the following (in terms of dentistry) (1) CT & MRI (2) OFNASET (3) CRP	03
	(b) Explain how the nanotechnology can improve the working of Implants and prosthetics.	04
	(c) Explain the working of Nanorobotics in surgery.	07
	OR	
Q.3	(a) Explain the basic principle of photodynamic theory.	03
	(b) How the fluorescence-based nanosensor work.	04
	(c) Explain the working of Nanosensor in Diagnostic drug delivery.	07
Q.4	(a) Define Nanocatalyst with an example.	03
	(b) Define Smart material and explain its various types.	04
	(c) What are smart memory alloys and explains its working in detail?	07
	OR	
Q.4	(a) Define Nanoreactors and where they are used?	03
	(b) What are the applications of Molecular Encapsulation?	04
	(c) Write a note on the development of heterogeneous nanostructure and composites.	07
Q.5	(a) What is precision farming? And why it required.	03
	(b) Give the difference between conventional fertilizer V/s Nano fertilizers.	04
	(c) Explain the potential of nanotechnology in terms of Nano fertilizers.	07
	OR	
Q.5	(a) Write down the application of thin film optical based optical immune sensors.	03
	(b) Explain the application of Nanotechnology in antimicrobial packing.	04
	(c) Write a note on the use of nanotechnology in contamination detection.	07
