

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-V(New) • EXAMINATION – WINTER 2016****Subject Code:2153903****Date:19/11/2016****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	Short Questions	14
	1 Give the full form of RFID	
	2 What are Nano fibers?	
	3 Give schematic diagram of Nano Encapsulation	
	4 What is OLED	
	5 Give applications for Shape Memory Alloys	
	6 What are the limitations of Photodynamic Therapy?	
	7 Give Block diagram for Tissue Engineering	
	8 State a few applications for supercapacitors	
	9 Define Chromogenic materials with its types	
	10 What are the Elements of Nano robots	
	11 Give examples for Nanotechnology in Modern Textiles	
	12 State uses of Nanomaterials in Dentistry	
	13 What is the size range of TiO ₂ nanoparticles that are employed in UV protection Sun screen creams	
	14 Give Block diagram for Nano Actuators	
Q.2	(a) Discuss Nano insecticides how is it beneficial when compared to traditional insecticides.	03
	(b) Write a short note on nanotechnology in the fertilizers in agriculture	04
	(c) How has nanotechnology improved Food packaging and Food processing	07
	OR	
	(c) How nanomaterials can improve Food quality and Safety using Smart Packaging.	07
Q.3	(a) Describe working of Photo voltaic cell	03
	(b) Write a short note on Nanotechnology in batteries	04
	(c) Explain the principle, construction and working of Electric Double Layer Capacitors with suitable diagram	07
	OR	
Q.3	(a) Write a short note on Nano wire transistor	03
	(b) Give a short note on Nano diodes	04
	(c) Explain the importance of nanotechnology in improving fuel cells	07
Q.4	(a) Explain in detail Nano actuators with suitable diagram.	03
	(b) Justify why we employ TiO ₂ nanoparticles in body lotion.	04
	(c) Explain in detail Nano sensors. Give its types and draw necessary diagram	07
	OR	
Q.4	(a) What is Molecular Encapsulation in Chemical Industry.	03
	(b) Explain nanomaterials in implants and prosthesis	04

- | | | | |
|------------|-----|---|-----------|
| | (c) | Elucidate nanotechnology in tissue engineering | 07 |
| Q.5 | (a) | State Applications of Nanotechnology in Dentistry | 03 |
| | (b) | Elaborate Nano robots in surgery. | 04 |
| | (c) | Explain Photodynamic therapy how it's employed in cancer treatment. | 07 |

OR

- | | | | |
|------------|-----|---|-----------|
| Q.5 | (a) | Write in brief about Nano catalyst | 03 |
| | (b) | What is smart materials and give its types. With examples | 04 |
| | (c) | Discuss how nanotechnology has improved textiles | 07 |
