

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER– III (New) EXAMINATION – WINTER 2019****Subject Code: 3133905****Date: 3/12/2019****Subject Name: Elements of Nanochemistry****Time: 02:30 PM TO 05:00 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) Give the name of various type of nanotechnology.	03
(b) Define: Nanoscience and Nanotechnology.	04
(c) Write a short note on CVD method for synthesis of nanostructured material.	07
Q.2 (a) Write down name of various synthesis techniques for synthesis of nanomaterials.	03
(b) Draw the schematic representation of various types of carbon nanotubes.	04
(c) Explain Properties of nanomaterials.	07
OR	
(c) Explain Sol-Gel technique.	07
Q.3 (a) Explain Ostwald ripening.	03
(b) Explain Nucleation and Growth of colloid.	04
(c) Write down applications of nanomaterials.	07
OR	
Q.3 (a) Explain Catalyzed (seeded) growth in colloid.	03
(b) Give a short note on anisotropic growth and shape control.	04
(c) Give a brief note on nanocrystal doping.	07
Q.4 (a) Define adsorption in surface chemistry.	03
(b) Explain applications of small surface in materials, lightning, and energy conversion (solar cells).	04
(c) What is the role of curvature effect on chemical reactivity?	07
OR	
Q.4 (a) Define: Nanoholes and photons in the vicinity of solar cell.	03
(b) Give drawbacks of liquid Electrolyte used in nanostructured solar cell	04
(c) Explain applications of small surface in catalysis.	07
Q.5 (a) Explain sample cleaning and chemical purification in nanotechnology.	03
(b) Write down environment applications of nonmaterial.	04
(c) Explain how nanotechnology will affect our life in the future, give your vision.	07
OR	
Q.5 (a) Define water purification methods.	03
(b) Give a brief note on flammable and toxic hazards.	04
(c) Explain chemical and biological contamination and safety issues in environmental safety.	07
