

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER- V (New) EXAMINATION – WINTER 2019

Subject Code: 2153904
Date: 21/11/2019
Subject Name: Elements of Nanoscience and Technology-II
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) Differentiate: Surface and Interface	03
	(b) Explain super hydrophobicity with contact angle.	04
	(c) Explain Nano synthesis using AAO template for industrial aspect.	07
Q.2	(a) Write down various properties associated with small cluster.	03
	(b) Explain, How to transfer white material in to transparent materials using nanotechnology with example.	04
	(c) Write short note on thermal expansion with necessary examples.	07
	OR	
	(c) Write a short note on Zeolites with industrial applications.	07
Q.3	(a) Give two example of Color generation from nanostructure.	03
	(b) Write down various applications associated with Super Critical Fluids.	04
	(c) Explain Electrophoretic deposition in the vicinity on Nano synthesis.	07
	OR	
Q.3	(a) Explain role of shape of matter at a nanoscale.	03
	(b) List out name of various materials used as catalyst.	04
	(c) Draw necessary diagram to explain electrospinning technique for prepare on Nano sensor.	07
Q.4	(a) Draw bandgap for Semiconductor, Quantum Dot and Atom in the vicinity of Energy.	03
	(b) Write down importance of electrolyte and surface preparation in electroplating	04
	(c) Draw the phase diagram to explain Supercritical fluid and explain it in the vicinity of physiochemical parameter.	07
	OR	
Q.4	(a) Define: Nano porous material.	03
	(b) Differentiate: High angle and Low angle grain boundary.	04
	(c) Write a short note on AgX photography.	07
Q.5	(a) Define :Ceramic Surface	03
	(b) Write a short not on magnetic and mechanical properties of nanomaterial.	04
	(c) Explain in detail: Electroplating for synthesis of Nano coating.	07
	OR	
Q.5	(a) Define: Nanocrystal	03
	(b) Write down various application associated with Nano membranes	04
	(c) Explain , How to synthesis nanoparticles using Supercritical fluid	07
