

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-V (NEW) EXAMINATION – WINTER 2018****Subject Code:2153904****Date:20/11/2018****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) What do you mean by Nano porous material?	03	
	(b) State the name of materials used to achieve the electrical conductivity on glass or polymer substrate.	04	
	(c) Write a short note on Electroplating with necessary figure and give few applications associated with it.	07	
Q.2	(a) Define: Quantum Confinement and Quantization of energy.	03	
	(b) Describe effect of size and sharp of nanostructured materials on the various chemical and physical properties.	04	
	(c) Explain thermal expansion with necessary equation and applications.	07	
OR			
Q.3	(c) Write a short note on AAO template based Nano structure synthesis.	07	
	(a) What do you mean by Surface energy and Nano crystal?	03	
	(b) What do you mean by Mesoporous materials and Macroporous materials.	04	
Q.3	(c) Explain Electrophoretic deposition in the vicinity on Nano synthesis.	07	
	OR		
	(a) Define absorption in the vicinity of chemical reaction.	03	
Q.4	(b) Discuss Catalysis and Detection.	04	
	(c) Write a short note on Molecular sieve.	07	
	(a) Define (1) Small clusters (2) Large clusters.	03	
Q.4	(b) Write down importance of electrolyte and surface preparation in electroplating.	04	
	(c) Write a short note on AgX photography.	07	
	OR		
Q.4	(a) Define: Nanowire and Nano Particles.	03	
	(b) Explain Magnetic properties at material at nanoscale.	04	
	(c) Write a short note on synthesis of Nano particles using SCF.	07	
Q.5	(a) Define Zeolites with its applications.	03	
	(b) Describe: high angle and low angle grain boundary.	04	
	(c) Write a short note on Electro spinning for Nano structure synthesis.	07	
OR			
Q.5	(a) What do you mean by Super Critical Fluids.	03	
	(b) Describe Nanostructured super hydrophobic surfaces.	04	
	(c) Give difference between solid surface and liquid surface with necessary equation.	07	

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