

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER– VII (New) EXAMINATION – WINTER 2019****Subject Code: 2170508****Date: 03/12/2019****Subject Name: Nano Technology****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) Define (1) Nano wire (2) Quantum dot (3) Magic number	03
	(b) Differentiate between Nano material and bulk material	04
	(c) Discuss the various approaches required to build the nano materials?	07
Q.2	(a) Briefly explain which properties of materials enhance at nano scale.	03
	(b) Differentiate between 1D and 2D structure with suitable sketch.	04
	(c) Explain the potential applications of nano dimensional materials in security, life science and electronics.	07
	OR	
	(c) Explain the application of nano material in ceramic.	07
Q.3	(a) Define and explain various defect in nano material.	03
	(b) Why the nano catalyst gives better result in chemical synthesis? Explain with suitable example?	04
	(c) Explain principle, working and application of sol-gel method.	07
	OR	
Q.3	(a) Briefly discuss the advantage of nano material in chemical industries.	03
	(b) Differentiate between Wet etching and Dry etching.	04
	(c) Explain the principle, and working of Co-precipitation method for nano synthesis.	07
Q.4	(a) Discuss the use of nano material in day to day life.	03
	(b) What is micro emulsion? List the advantage of micro emulsion.	04
	(c) Explain the principle, working and application of spray pyrolysis method.	07
	OR	
Q.4	(a) Define (1) Carbon nano tube (2) Nano silver	03
	(b) Identify and discuss the application of nano material in cosmetic.	04
	(c) Explain the effect of nanometer length on the physicochemical properties of material.	07
Q.5	(a) Discuss about nano sensor.	03
	(b) How the SEM differ from TEM.	04
	(c) Explain the principle, working and construction of Vu-visible spectroscopy.	07
	OR	
Q.5	(a) Discuss the electro deposition process.	03
	(b) Briefly describe AFM and its application.	04
	(c) Explain the principle, working and construction of XRD.	07
