

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-VII (NEW) EXAMINATION – WINTER 2018

Subject Code: 2173901

Date: 15/11/2018

Subject Name: Application of CNT and Metallic Nanoparticles

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 is Magic Number?	03	
	(b) Describe Biological Applications of CNT.	04	
	(c) Describe Basic Concept of Carbon Nanotubes and its Structure. (With Diagram)	07	
Q.2	(a) Explain Optical Properties of CNT.	03	
	(b) Describe Geometric Structure of Metal Nanoparticles.	04	
	(c) State and Describe all the Properties of CNT.	07	
OR			
Q.3	(c) Application of CNTs in Electronics.	07	
	(a) What are three different types of Stabilization Techniques used for Metal Nanoparticles?	03	
	(b) Describe Electronic Structure of Metal Nanoparticles.	04	
Q.3	(c) Elaborate Applications of CNT for Energy.	07	
	OR		
	Q.3	(a) State Different Methods for Fabrication and Purification of CNT and Describe briefly.	03
(b) Briefly Describe the Symmetry of Single Wall CNT.		04	
(c) Write a short note on Metal Nanoparticles.		07	
Q.4	(a) What is Flow reaction and Batch Reaction.? (Hydrothermal Synthesis)	03	
	(b) Explain Microwave Assisted Synthesis and What will be synthesized from this method?	04	
	(c) Explain Stabilization Mechanism of Metallic Nanoparticles and its types.	07	
OR			
Q.4	(a) Explain Dative Bonds.	03	
	(b) Describe Mechanical Properties of CNT.	04	
	(c) Describe any Five Methods for synthesis of Metal Nanoparticles.	07	
Q.5	(a) What is Zeta Potential explain briefly.	03	
	(b) Explain how Metal Nanoparticles can be used in Solar Energy Conversions.	04	
	(c) Explain the Application of Metallic Nanoparticle in Medical Field.	07	
OR			
Q.5	(a) Explain briefly DLVO Theory	03	
	(b) Describe Phase Transfer Method for MNPs.	04	
	(c) State all the methods under Wet Chemical Synthesis Route for Metal Nanoparticle Synthesis and describe briefly.	07	
