GUJARAT TECHNOLOGICAL UNIVERSITY BE - SEMESTER-VII(NEW) • EXAMINATION – WINTER 2016			
Subject Code:2173901 Date:18/11/2016   Subject Name:Application of CNT and Metallic Nanoparticles   Time:10.30 AM to 1.00 PM Total Marks: 70   Instructions: 1. Attempt all questions.   2. Make suitable assumptions wherever necessary. 3. Figures to the right indicate full marks.			6
			70
Q.1	(a) (b)	Discuss the basic concept of CNT with suitable diagrams? Explain Chirality with suitable diagrams? Also discuss its one fabrication process briefly?	07 07
Q.2	(a) (b)	What are magic numbers? Discuss laser evaporation technique for the preparation of metal nanoparticles? Briefly describe theoretical modeling of nanoparticles?	07 07
	(b)	OR Explain super fluid clusters?	07
Q.3	(a) (b)	Give a brief description of electronic properties of CNT? Describe briefly Mechanical properties of CNT?	07 07
Q.3	(a) (b)	Discuss Landauer Theory for Phonon transport? Discuss optical properties of CNT?	07 07
Q.4	(a) (b)	How metal nanoparticles can be synthesis by using electrochemical method? Write a short note on Reverse Micelles Synthesis or Microwave assisted synthesis?	07 07
~ 4		OR	~-
Q.4	(a)	i) $Cd(C_2O_4) + NaHSe_{Pyridige} CdSe + CO_2$ ii) $Cu-CH_3COOH + Pd-CH_3COOH \underline{MIBK} Cu-Pd(nano particles)$	07
	<b>(b)</b>	Explain Co-precipitation and sol-gel synthesis of metal nanoparticles?	07
Q.5	(a) (b)	Discuss the various applications of CNTs in electronics and in energy? How CNTs are used in biological applications?	07 07
Q.5	(a)	Discuss the microelectronic and solar energy conversion applications of metal nanoparticles?	07
	<b>(b)</b>	Discuss Quantum Dot lasers and chemical sensor applications of metal nanoparticles?	07

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