

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE SEM-VIII Examination May 2012

Subject code: 182303

Subject Name: Nanotechnology and Advanced Applications of Plastics

Date: 14/05/2012

Time: 10.30 am – 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.

- Q.1 (a) Define Nanotechnology. Explain it with the help of 3 imaginary axes 07
(b) What do you understand by Nano particles, what are its benefits? Define Nano science and Nano additives 07

- Q.2 (a) Why one wants to make things very small? Viewing Nanotech along the materials, devices and systems, discuss the issues in its miniaturization 07
(b) What are the methods of measuring the results of fabrication of nano materials? In short, write about (a) Reduce the wavelength (b) New field Microscopy and (c) Non Imaging approaches. 07

OR

- (b) Write short notes on (a) Bottom up methods and (b) Biological growth of Nanofacture. 07

- Q.3 (a) Describe (a) Comminution and Dispersion Approach (b) Nucleation and Growth Approach for making Nano Particles. 07
(b) Write short notes on (a) Nano-Fibers and (b) Nano Plates. 07

OR

- Q.3 (a) Discuss Graphen based materials. 07
(b) List the various nano devices. Discuss all Electronic Devices in detail 07

- Q.4 (a) Draw a block diagram of Different Modes of Nano manufacture. Explain the Top down method of Nanofacutre. 07
(b) Write short notes on (a) Nano medicine and (b) Biosensors 07

OR

- Q.4 (a) Write short notes on (a) The Atomic Force Microscope and (b) The Scanning Ion Current Microscope 07
(b) Write short notes on (a) Nano fibers and (b) Nano plates 07

- Q.5 (a) How the Polytetra Fluoroethylene (PTFE) is manufactured? List its characteristics, grade of its avaiability and techniques for its processing. Give its at least 5 trade names along with its manufacturers and suppliers 07
(b) List the various applications of PTFE and TPU 07

OR

Q.5	(a)	Write a detailed notes on Polyether Sulphone (PES)	07
	(b)	Write a detailed notes on Polyether ether Ketone (PEEK)	07