

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY

M. E. IST Semester–Remedial Examination – July- 2011

Subject code: 713006N

Subject Name: Nano-Devices Fabrication Technology

Date: 13/07/2011

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) Why Silicon is preferred over other materials for microelectronics devices? **07**
Discuss how 'Electronic grade silicon is obtained from Metallurgical grade Silicon.
- (b) Explain construction and working of Czochralki Crystallizer with neat diagram. **07**
- Q.2** (a) Explain Top-Down and Bottom-up approach of synthesis of Nano material. **07**
(b) Discuss effect of defects on Nano devices. **07**
- OR**
- (b) Discuss Four point probe method for determination of resistivity of Crystal. **07**
- Q.3** (a) Show with the diagram basic steps in fabrication of microelectronic devices. **07**
(b) What is Dry Etching and Wet Etching? Compare both. **07**
- OR**
- Q.3** (a) Discuss Processing steps in CMOS. **07**
(b) State various impurity profile measurement methods. Discuss C-V technique, Differential conductivity techniques & Spreading resistance technique and their limitations **07**
- Q.4** (a) Discuss Plasma enhanced Chemical Vapor Deposition **07**
(b) What is Nano filter? How it is fabricated? **07**
- OR**
- Q.4** (a) Discuss the equipment used for Mettalization **07**
(b) Discuss the problems of mettaalization and electromigration **07**
- Q.5** (a) Discuss various structure of Carbon Nano tubes. **07**
(b) Explain Contact and Proximity Printing. **07**
- OR**
- Q.5** (a) Discuss Optical projection lithography. **07**
(b) Discuss String model for Etching and deposition. **07**
