

Total No. of Questions : 12]

SEAT No. :

P846

[4659]-105

[Total No. of Pages : 3

B.E. (E &TC)

c - NANO TECHNOLOGY

(2008 Pattern) (Elective-IV) (Semester - II)

Time : 3Hours]

[Max. Marks :100

Instructions to the candidates:

- 1) *Answer any three questions from each Section.*
- 2) *Answers to the two sections should be written in separate answer books.*
- 3) *Neat diagram must be drawn wherever necessary.*
- 4) *Figure to the right indicates full marks.*

SECTION-I

Q1) Write short notes on: **[18]**

- a) Nano crystal growth
- b) Dip pen Nano Lithography
- c) Spectroscopy

OR

Q2) a) Explain the tools to imagine the Nano behaviour. **[9]**

b) List out the tools for measuring the Nano structures. Explain on tool in detail. **[9]**

Q3) a) Compare floating gate and non volatile memory based on Nano crystal growth. **[8]**

b) Draw and explain the process flow for integrating Nano crystal memory with standard CMOS technology. **[8]**

OR

Q4) a) Explain scanning probe microscopy. **[8]**

b) Explain the silicon Nano crystal non volatile memory bit cell. **[8]**

P.T.O.

- Q5)** a) List out & explain the applications of carbon Nano tubes. [8]
b) Write short notes on: [8]
i) Single wall carbon Nano tube.
ii) Multi wall.

OR

- Q6)** a) Explain the properties of metal Nano cluster. [8]
b) What are the different types of carbon structure? Explain it. [8]

SECTION-II

- Q7)** a) Explain the switching process of Azobenzene molecule with respect to molecular switches. [6]
b) Explain optical lithography. [6]
c) Explain fabrication technique used for NEMS. [6]

OR

- Q8)** a) Explain Nano imprint lithography. [6]
b) Explain in detail NEMS. [6]
c) Explain in detail Quantum Correl technology. [6]
- Q9)** a) Explain soft computing with respect to Nano electronics. [8]
b) What are the different tools for fabrication of micro and Nano structure. [8]

OR

Q10) Write short notes on with respect to Nano electronics: **[16]**

- a) EM field and photons.
- b) Quantization of action charge and flux.

Q11)a) Write short notes on: **[8]**

- i) Photo dynamic therapy.
 - ii) Nano luminescent tags.
- b) List out & explain any two applications of Nano-electronics in Biomedical. **[8]**

OR

Q12)a) Write short notes on: **[8]**

- i) Biosensors.
 - ii) Electromagnetic sensors.
- b) List out applications of Nanotechnology in Electronics & explain any two of them in detail. **[8]**

EEE