

Total No. of Questions : 12]

SEAT No. :

P778

[Total No. of Pages : 3

[4659] - 128

B.E. (Electronics Engineering) (Semester - II)

**Nanotechnology in Electronics
(2008 Pattern) (Elective - IV (d))**

Time : 3 Hours]

[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 books.*
- 3) *Neat diagrams must be drawn wherever necessary.*
- 4) *Figures to the right indicate full marks.*

SECTION - I

- Q1)** a) Define nanotechnology. Write few applications of nanotechnology. [6]
- b) Justify 'Biosystem is nothing but complex nanosystems'. [6]
- c) Comments on 'Electrical conduction and ohms law in relation with nanotechnology'. [6]

OR

- Q2)** a) Enlist the tools for measurement of nanostructures. Explain one of them. [10]
- b) What is polymerization? Explain the process of DNA hybridization with schematic. [8]

- Q3)** a) Explain the scanning probe microscopy. [8]
- b) Compare floating gate NVM and nanocrystal NVM. [8]

OR

P.T.O.

- Q4)** Write a short note on: [16]
- a) Nano CMOS.
 - b) Silicon nanocrystal.
 - c) Novel dielectric material.

- Q5)** a) Classify carbon nanotube and write four applications of carbon nanotube. [8]
- b) Explain nature of carbon bond. [8]

OR

- Q6)** Write a short note on: [16]
- a) Carbon molecule.
 - b) Cluster.
 - c) Fabrication of carbon nanotube.

SECTION - II

- Q7)** a) Explain MEMS devices used in automobile. [9]
- b) How STM can be used to build NEMS? [9]

OR

- Q8)** Write a short note on: [18]
- a) Nano devices.
 - b) Lithography.
 - c) Molecular and super molecular switches.

- Q9)** a) Explain the role of nano technology in advanced computation. [8]
- b) Enlist various limitations of silicon material technology. [8]

OR

- Q10)** a) Explain with schematic a SET in an inverter circuit configuration. [8]
b) What are the different tools used for fabrication of micro and nano structures. [8]

- Q11)** a) Enlist the applications of nanotechnology in optics. [8]
b) Write various biomedical applications in nanoelectronics. [8]

OR

- Q12)** Write a short note on: [16]
a) Transformation of storage.
b) Gates and switches.
c) Nanostructures in electronics.

