Total No. of Questions : 8] *[Total No. of Printed Pages : 2*

Roll No .....

EC-6005 (1) (CBGS)

B.E. VI Semester

Examination, November 2019

Choice Based Grading System (CBGS)

Nano Electronics

Time : Three Hours

Maximum Marks : 70

Note: i) Attempt any five questions.

ii) All questions carry equal marks.

1. What is Sol-gel synthesis method of obtaining Nanomaterials? Present the different stages and routs of this technology Schematically.

2. Explain Atomic Force Microscope? Describe the different mode of its operation in detail.

3. Describe Transmission Electron Microscope (TEM) with its ray diagram, construction and working principle.

4. What are CNTs (Carbon Nano Tubes)? Discuss their structures and electronic properties.

5. Explain silicon dioxide based dielectrics and metal gates.

6. Discuss super-paramagnetism and ferromagnetism in semiconducting quantum dots. State their applications in nanoscale devices.

7. Explain Single Electron Transistor (SET) with structure, working principal and application.

8. Write short note on any two of the following:

a) Top-Down and Bottom Up Approach

b) Nano-lithography

c) Coulomb blockade

d) MOSFET

e) Nanoparticles

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