

R09

Code No: 56014

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B. Tech III Year II Semester Examinations, December - 2018

NANO TECHNOLOGY

(Common to EEE, ME, ECE, AE)

Time: 3 hours

Max. Marks: 75

**Answer any five questions
All questions carry equal marks**

- 1.a) Briefly describe the Nanostructure types and examples.
b) Explain the Magnetic Properties of Nanomaterials. [7+8]
2. Write a short note on:
a) One dimensional confinement (Quantum wires)
b) Two dimensional confinements (Quantum Wells). [7+8]
- 3.a) Describe the discovery, importance, applications of C60 Nanostructures.
b) Explain the electrical properties of CNTs and applications. [8+7]
- 4.a) Explain the working principle of gas condensation and Arc discharge method.
b) Define i) Epitaxy ii) Sputtering iii) Condensation iv) Deposition. [5+10]
- 5.a) Write the Principle, construction, working and applications of XRD.
b) Describe the principle of SEM. [8+7]
6. Explain:
a) Lab on chip for bio-analysis
b) Bone tissue treatment. [8+7]
7. Explain:
a) Single Electron transistors
b) Coulomb blockade phenomena. [8+7]
8. Write the principle, construction, working and applications of the following:
a) E-beam lithography
b) SEM based nanolithography. [7+8]

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