Code No: 56014 **R09**

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech III Year II Semester Examinations, May - 2019
NANO TECHNOLOGY
(Common to ME, ECE, AME)

Time: 3 hours **Max. Marks: 75**

Answer any five questions
All questions carry equal marks
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1.a) Explain in detail with suitable examples why elastic, diffusivity properties will differ for nanomaterials to bulk materials.
b) What do you mean by Giant Magneto Resistance (GMR)? Explain briefly the working principle and end applications of GMR materials. [7+8]

2.a) Explain briefly the Quantum confinement of electrons in semiconductor Nano structures.
b) Distinguish Quantum wells and Quantum dots with examples. [7+8]

3. Write properties and applications of C60, C80 and C240 Nanostructures. [15]

4.a) What do you mean by Laser pyrolysis? Explain the working principle briefly.
b) Distinguish Arc discharge, Plasma arc techniques. [7+8]

5.a) How crystallite size differ from particle size? Explain the working principle of X-ray Diffractormeter with the use of Bragg's Law.
b) Distinguish AFM & MFM techniques with examples. [8+7]

6.a) What do you mean by Targeted Drug delivery? Distinguish site specific and targeted drug delivery systems with examples.
b) How cancer and bone tissue treatment is done with lab on chip technique? Discuss briefly. [8+7]

7.a) What do you mean by Single Electron transistors? Explain the working principle with few examples.
b) Explain briefly about Resonant-Tunneling structures. [7+8]

8.a) Explain the phenomenon of Nano-lithography and discuss the real world applications.
b) Discuss briefly about Ion beam lithography. [8+7]

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