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Roll No .....

MNT - 205

M.E./M.Tech. II Semester

Examination, December 2015

Nano Biotechnology

Time : Three Hours

Maximum Marks : 70

**Note :** Attempt any five questions out of the total eight asked.  
Each question carries equal marks.

1. What are Biomolecules? Discuss the role of biomolecules in sustaining the life in an organism. 14
2. Describe the procedure of bio-functionalization of polymer Nanoparticles and carbon nanotubes. Give their suitable applications. 14
3. Explain the bone regeneration process considering both natural and reinforced by Hydroxyapatite? 14
4. What are proteins? How nanoparticles can be used in protein recognition? 14
5. Explain Nanoshells and tectodendrimers nanoparticle drug systems. Discuss diagnostic applications of Nanotechnology? 14

6. Draw a well-labeled diagram of a cell. Describe the components of an animal cell and their functions in detail. Differentiate between Animal cell and Plant cell. 14
7. What are Amino acids? What are its types? Explain how amino acids play a vital role in regulating the genetic traits. 14
8. Write short notes (Any Two) 14
  - a) Bioceramics and biomimetic nanomaterials.
  - b) Structures of DNA and RNA.
  - c) Nanodevices for Blood clotting.
  - d) Drug delivery by Liposomes and Dendrimers.
  - e) Brownian motion in Biological membranes.
  - f) Surface Plasmon resonance sensors.

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