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10NT661

**Sixth Semester B.E. Degree Examination, June/July 2016**  
**Nanobiotechnology**

Time: 3 hrs.

Max. Marks:100

**Note: Answer FIVE full questions, selecting  
at least TWO questions from each part.**

**PART – A**

- 1 a. Distinguish between bionanotechnology and nanobiotechnology (08 Marks)
- b. Write a short note on the light dependent chemical reactions in biological system. (06 Marks)
- c. Write short note on biomaterials. (06 Marks)
- 2 a. Explain about the four hierarchical strategies of construction of nanomachines. (08 Marks)
- b. Discuss about biomolecular structure and stability. (12 Marks)
- 3 a. Why gravity and inertia are negligible at nanoscale? (06 Marks)
- b. Explain about atomic granularity of nanomachines. (04 Marks)
- c. Explain about protein based nanomachines. (10 Marks)
- 4 a. Write a short note on biochip and micro array fabrication. (10 Marks)
- b. Describe about nano-sensors and its applications. (06 Marks)
- c. Explain about effect of biosensors in biological and physico-chemical techniques. (04 Marks)

**PART – B**

- 5 a. Write a brief note on sequence specific molecular lithography. (10 Marks)
- b. Write a note on bioelectronics. Explain how biomolecules manipulate the bioelectronics. (10 Marks)
- 6 a. What is medical imaging? (04 Marks)
- b. What is MRI? Mention its advantages and limitations. (06 Marks)
- c. Explain about targeted drug delivery. (10 Marks)
- 7 a. What are the predictable advantages of nanobiotechnology? (06 Marks)
- b. Give the case study on solving the issue of mutation of P<sup>53</sup> gene. (10 Marks)
- c. Write a short note on the advantages and limitations of nano robots in repair of cells and genes. (04 Marks)
- 8 a. Explain about protein biochip array. (10 Marks)
- b. Explain briefly about nanotoxicology. (10 Marks)

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Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.  
2. Any revealing of identification, appeal to evaluator and /or equations written eg, 42+8 = 50, will be treated as malpractice.