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10BT831

**Eighth Semester B.E. Degree Examination, June/July 2019**  
**Nano Biotechnology**

Time: 3 hrs.

Max. Marks: 100

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

**PART – A**

- 1 a. Explain fabrication of nano-materials using Ball milling and sol – gel process. (12 Marks)  
b. Describe the role of micro-fabrication in soft material nano-fabrication with example. (08 Marks)
- 2 a. Give an account of general lithography steps used in manufacturing of nanochips. (10 Marks)  
b. Narrate on Quantum dots and dendrimer nano particles. (10 Marks)
- 3 a. Write a note a principle and Instrumentation of scanning tunneling microscopy. (08 Marks)  
b. Briefly on Invitro and Invivo toxicity assessment of Nanoparticles. (12 Marks)
- 4 a. Explain the role of Nanobiosensor in diagnostics. (08 Marks)  
b. Illustrate on Nano – therapeutics. (12 Marks)

**PART – B**

- 5 a. What are nanoimaging agents? Explain the benefit of Nano-imaging agents in imaging. (06 Marks)  
b. Explain the importance of nanoparticles in drug discovery and drug delivery. (06 Marks)  
c. Write an important note on Bioavailability, Sustained and targeted drug release. (08 Marks)
- 6 a. Explain micro-fluidics and the 'body on chip' (10 Marks)  
b. With case study explain the use of microfluidic device in chemotaxis and cell mobility detection. (10 Marks)
- 7 a. Discuss sensing and actuating mechanism in any two transducers. (10 Marks)  
b. Write a note on mechanical and electromagnetic transducers. (10 Marks)
- 8 a. Narrate on ultimate limits of BioMEMS fabrication and measurement. (08 Marks)  
b. Discuss the application of optical and chemical transducer with example. (12 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.