

BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI  
(END SEMESTER EXAMINATION)

CLASS: BTECH  
BRANCH: ALL

SEMESTER : VII  
SESSION : MO/2022

SUBJECT: BE407 NANOTECHNOLOGY  
TIME: 3:00 Hours

FULL MARKS: 50

**INSTRUCTIONS:**

1. The question paper contains 5 questions each of 10 marks and total 50 marks.
  2. Attempt all questions.
  3. The missing data, if any, may be assumed suitably.
  4. Before attempting the question paper, be sure that you have got the correct question paper.
  5. Tables/Data hand book/Graph paper etc. to be supplied to the candidates in the examination hall.
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- Q.1(a) Explain the concept of Quantum Confinement and its significance? L2-CO1 [5]  
Q.1(b) Explain the principle and working of UV-Vis Spectroscopy and its application in nanotechnology? L2, CO1 [5]
- Q.2(a) Discuss any two examples of biological nanomaterials and their structural organization with supporting examples? L2-CO2 [5]  
Q.2(b) Differentiate between the terms Self Assembly & Self Organization with supporting examples? L4-CO2 [5]
- Q.3(a) Classify nanomaterials base on their dimensionality and origin with supporting examples? L2-CO1 [5]  
Q.3(b) Describe the method, properties and applications of carbon nanotube? L2 -CO3 [5]
- Q.4(a) Discuss the biological synthesis approach of nanofabrication in detail with supporting examples? L2-CO3 [5]  
Q.4(b) "Contrast the major advantages & limitations of biosynthesis with physical and chemical nanofabrication methods? L4-CO3 [5]
- Q.5(a) Explain the principle of working of a biosensor with schematics and important characteristics. L2-CO4 [5]  
Q.5(b) Describe the principle, working and applications of Optical Nanobiosensor with example? L2-CO4 [5]

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