

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

**CLASS: MSc/IMSc
BRANCH: PHYSICS**

**SEMESTER : I/VII
SESSION : MO/2024**

SUBJECT: BE602 ADVANCES IN NANOBIO TECHNOLOGY

TIME: 3 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) | Depending on dimension, classify nanoparticles and what is bucky ball? | [5] 1 | 2 |
| Q.1(b) | Write note on quantum dots and carbon nanotube. | [5] 2 | 2 |
| Q.2(a) | What is top down and bottom up approach and describe any one physical technique for metal nanoparticles synthesis. | [5] 2 | 2 |
| Q.2(b) | What is nanoscale and how the structure of a nanoparticle can be characterized. | [5] 2 | 2 |
| Q.3(a) | What is DNA lattice and how DNA functionalized gold nanoparticles are useful. | [5] 3 | 3 |
| Q.3(b) | What is S layer and how it is applicable in Biotechnology. | [5] 3 | 2 |
| Q.4(a) | Describe the components and working principle of biosensor with diagram. | [5] 3 | 2 |
| Q.4(b) | What is microfluid and how it is involved in lab-on-chip technology. | [5] 3 | 3 |
| Q.5(a) | How dendrimers are useful in drug delivery, with diagram elaborate. | [5] 3 | 3 |
| Q.5(b) | What are the challenges of nanotoxicity in future. | [5] 2 | 2 |

::::::27/11/2024::::::E