



RAN - 2003001105020003

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**B. Sc. Biotechnology (Sem. - V) Examination October - 2023**

**Introduction to Nanobiotechnology**

**Time: 2 Hours ]**

**[ Total Marks: 50**

**सूचना : / Instructions**

- (1) नीचे दशविले निशानीवाणी विगतो उत्तरवली पर अवश्य लपववी.  
**Fill up strictly the details of signs on your answer book**
- Name of the Examination:  
B. Sc. Biotechnology (Sem. - V)
- Name of the Subject :  
Introduction to Nanobiotechnology
- Subject Code No.: 2003001105020003

Seat No.:

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Student's Signature
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- (2) Figures to the right indicate full marks.  
(3) Draw neat and labelled diagrams wherever necessary.

**Q. 1. Define / Answer in short. Any Four (8)**

- (a) Define SVR.  
(b) State the usage of DNA tweezer and DNA actuators in nanobiotechnology.  
(c) Define Bionanotechnology and its application in medical science.  
(d) What are "Viral Protein Linear motors" with example.  
(e) What are G-Quadruplexes?

**Q. 2. Attempt. Any Two (14)**

- (a) Explain any three forces or laws that do not apply at Nanoscale.  
(b) Explain with example how Nanoparticles can be used as a carrier molecule.  
(c) Application of Nanomaterials in food harvesting, storage and packaging stages.

**Q. 3. Explain in detail. Any Two (14)**

- (a) Write a note on Biosynthesis of Nanoparticles.  
(b) Compare the synthesis of nanoparticles in all three phase of matters.  
(c) State the utility of DNA as a nanostructure and its electronic properties.

**Q. 4. Attempt Any Two of the following :**

**(14)**

- (a) Write a note on protein nanostructure.
  - (b) Explain Sol-gel method and Sonochemistry method for Nanoparticle synthesis.
  - (c) Describe photocatalytic activity of  $\text{TiO}_2$  nanoparticles.
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