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(20721) Roll No. ....  
B.Sc. (Bio-Tech.)-III Yr.

**NS-3476 (CV-II)**

**B.Sc. (Bio-technology) Examination,**

**June-2021**

**NANOBIOTECHNOLOGY**

**(B-304)**

**B.Sc. (Biotech.)**

**Time : 1½ Hours ] [Maximum Marks : 75**

**Note :** Attempt any **two** questions. **All** questions carry equal marks.

1. (a) Differentiate between nanotechnology and bionanotechnology.  
(b) Write in brief about bionanomachines.

2. Write the role of nanobiotechnology in diagnosis and treatment of following diseases.
  - (a) Cancer
  - (b) Cardiovascular disease
  - (c) Respiratory disease
3. Write short notes on :
  - (a) 'C' Dots
  - (b) Nanofluids and their uses
  - (c) MW CNT
  - (d) Virus as nano particles
  - (e) Artificial blood
4. (a) Discuss bottom up approach of synthesis of nanomaterials.
  - (b) Explain chemical vapour deposition of Carbon nanotubes.
  - (c) Explain homogenous and heterogenous nucleation.

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5. Write short notes on :
- (a) Atomic force microscopy
  - (b) Scanning electron microscopy
  - (c) X-ray diffraction (XRD)
6. (a) Enlist the application of nano materials in biological sciences.  
Explain in detail any two of them.
- (b) In vivo synthesis of nano particles.
7. What is biosensors? Explain different types of biosensors along with methods of production.
8. Write short notes on :
- (a) Bio templating
  - (b) DNA as nano particles
  - (c) Nanowires and their applications
9. (a) Explain interaction of nanoparticles with biomembrane and genes.
- (b) Quantum dots and their applications.
10. (a) Explain nanoparticles based immobilization assays.
- (b) Different class of biomedical polymers and their applications.