

10. What do you mean by immuno nanotechnology? Discuss any three developments or achievements of scientists in this field. 7.5

NS-34764

**N** (Printed Pages 4)  
(20517) Roll No. ....  
**B.Sc. (Bio-Tech.)-III Yr.**

**NS-3476**

**B.Sc. Bio-Technology Examination, May 2017**

**Nanobiotechnology**

**(B-304)**

**(New)**

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

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

1 Explain the terms 'Nanotechnology' and 'Bionanotechnology'. Discuss the properties of nanomaterials which make them different from bulk materials. 7.5

**P.T.O.**

2/ Discuss and compare the advantages and disadvantages of

- (a) Sol-gel methods,
- (b) Chemical vapour deposition, and
- (c) Physical vapour deposition methods of material processing. 7.5

3/ With the help of suitable diagrams, explain the principle and working of SEM. 7.5

4. Write short notes on any three :

- (a) Eric Drexler
- (b) Advantages of AFM
- (c) Fullerenes
- (d) M-13 virus and its use in nano-technology.

5. Mention different properties of viruses which make them an ideal material for nanotechnology. Discuss two examples of their applications in nanotechnology. 7.5

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6. Write short notes on any three : 7.5

- (a) Difference between thin sheet, nano wire and nanoparticle.
- (b) Artificial blood
- (c) Cyclic peptides from nanotubes
- (d) Nano batteries

7/ Distinguish between different classes of biomedical polymers and their use in pharmaceutical industry. 7.5

8. What do you mean by the terms "assay" and "immobilisation"? Give examples and principles of some nanoparticle based immunoassay. 7.5

9. Discuss in detail three examples of nanomaterials in food industry or biological research. 7.5

NS-347613

P.T.O.

(20518)

Roll No. 1593502661

B. Sc.(Biotech.)-III Year

**NS-3476**

**B. Sc. (Biotechnology) Examination, May 2018**

**Nanobiotechnology**

**(B-304)**

**(New)**

*Time : Three Hours]*

*[Maximum Marks : 75*

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

1. Explain the term 'Nanotechnology' and 'Bionanotechnology'. Discuss the properties of nanomaterials which make them different from bulk material. 15
2. Write in detail three examples of nanomaterials in biological research. 15

(2)

3. Explain the principle and working of SEM or TEM with the help of suitable diagrams. 15
4. Write an essay on viruses as Nanoparticles. 15
5. Give an account of biomedical polymers and their application in pharmaceutical industry. 15
6. Write notes on the following :  
 $7\frac{1}{2} \times 2 = 15$ 
  - (a) Nanobatteries
  - (b) Difference between thin sheet, nanowire and nanoparticle.
7. Compare the advantages and disadvantages of the following :  $7\frac{1}{2} \times 2 = 15$ 
  - (a) Sol-gel methods
  - (b) Chemical vapour deposition.

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(3)

8. What do you mean by Immunonanotechnology ? Describe any three achievements of scientists in this field. 15
9. Discuss in detail three examples of nanomaterials in Biological research. 15
10. Write notes on the following :  $7\frac{1}{2} \times 2 = 15$ 
  - (a) Advantages of AFM
  - (b) Anti AIDS drug.

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A (Printed Pages 2)  
(20620) Roll No. ....  
B.Sc.(Biotech.)-III Year

## **NS-3476 (CV)**

**B.Sc. (Biotechnology) Examination,  
June- 2020**

**Nanobiotechnology**

**(B-304)**

*Time : Two Hours ]*

*[Maximum Marks : 75*

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

1. Explain the working of SEM with the help of suitable diagrams.
2. What is Nano biotechnology? Explain its application and scope.
3. Give a detailed account of viruses or nanoparticles.
4. What is Biomedical polymer? Explain their uses in pharamaceuticals.
5. Give a general account of nano particle based immobilization assays.

**P.T.O.**

6. Write notes on -

(i) Nano batteries

(ii) Anti aids drugs

7.

What is Biosensor? Explain the principle used in the construction of micro electronic device sensors.

8.

Write notes on :

(i) Artificial blood

(ii) AFM

9.

Write notes on :

(i) Immuno Toxins

(ii) Microwave synthesis of materials

10. What do you mean by Immuno nano technology? Describe any three achievements of scientists in this field.