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(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

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