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Total No. of Pages : 02

Total No. of Questions : 11

M.Sc. (BT) (Sem.-1)
NANOBIOTECHNOLOGY
Subject Code : MBT-112
M.Code : 75665
Date of Examination : 21-01-2023

Time : 3 Hrs.

Max. Marks : 70

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains SEVEN questions carrying SIX marks each and students have to attempt any FIVE questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

SECTION-A

1. Write short note on the following :

- a. Concept of nano biotechnology
- b. Nano-biosensors
- c. Quantum dots and its applications
- d. DNA oligomers
- e. Nano-pesticides
- f. Nanotechnology in food safety
- g. Applications of Gold nano-particles
- h. Role of nano-technology in smart packaging
- i. Polymer nano-containers
- j. Carbon nano-tubes.

SECTION-B

2. Describe some important structural and functional properties of nano materials.
3. Differentiate between nano science and nano technology. Discuss some recent developments in nano-technology.
4. Explain the top down and bottom up approach for synthesis of nanoparticles.
5. **Explain the terms :**
 - a) nano-particle,
 - b) nano-composite
 - c) nano-powders.
6. What are nano based fertilizers? How these are better than their conventional counterparts?
7. Describe the structure and properties of fullerene.
8. Describe the principle of nano-bioelectronic devices and enlist some applications of these devices.

SECTION-C

9. What do you mean by nucleic acid engineering? Describe the major strategies used for modification of DNA for nano-technological applications.
10. Differentiate between inorganic and organic nano-particles? Write a detailed note on microbial production of inorganic nano-particles and their applications.
11. **Write a detailed note on the following :**
 - a) Impact of nano-materials in biological processes.
 - b) Opportunities and challenges for nano-biotechnology.

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.