Roll No. | | | | | | | | | | | | Total No. of Pages : 02

Total No. of Questions : 20

M.Sc. (BT) (2018 Onwards Batch) (Sem.-1)

NANOBIOTECHNOLOGY

Subject Code : MBT-112

M.Code : 75665

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

Write short note on following :

1. How nano-biotechnology is different from nano-science?
2. What is the diameter of a bucky ball? How many pentagons and hexagons are there in a bucky ball?
3. Decipher the terms :

   (i) MIMIC

   (ii) PDMS in protein nanocircuity.
4. What are the effects of nanoparticles on the environment?
5. Give some examples of DNA Nanostructures.
6. Explain basic biological concepts and principles for the development of nanoengineering systems.
7. Discuss the nanotoxicology in marine system.
8. Which amino acids provide sharp bends/turns in protein chain?
9. Give few examples of bionanomachines.
10. Enlist the pro and cons for ZnO nanomaterials used as fertilizers in agriculture field.

SECTION-B

11. Explain the Principle for DNA based Nanostructure.

12. Discuss in detail structural and functional principles of Nanobiotechnology.

13. Write down the protein based nanocircuity in silicon wafer and antigen antibody binding with the specific site with neat diagram.

14. Explain the role of DNA as Functional Template for Nanocircuitry.

15. Write a short note on current status and future perspectives of nanotechnologv in agriculture field.

16. Discuss the role of liposome based nanobiosensor for pesticide detection.

17. Write a short note on Physico-chemical properties of nanoparticles that determine their potential toxicity.

SECTION-C

18. Discuss in detail the Nanoparticle based Biomaterial Hybrid Systems for bioelectronic Devices with examples and neat sketch.

19. Write a short on the following :

    a) Nanomaterials used in food preservation.

    b) Gold nanoparticles used in biosecurity.

20. a) Describe the generation of different ROS in a cell under the effect of toxic nanomaterials.

    b) Give the name of various principles (any four) essential for framing the ethical guidelines for carrying out research activities in the domain of nanotechnology.

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.