STELLA MARIS COLLEGE (AUTONOMOUS) CHENNAI –600 086
(For candidates admitted during the academic year 2019 – 2020 & thereafter)

SUBJECT CODE:19BY/PC/BN44

M. Sc. DEGREE EXAMINATION, APRIL 2023
BIOTECHNOLOGY
FOURTH SEMESTER

COURSE : CORE
PAPER : BIO-NANOTECHNOLOGY
TIME : 3 HOURS **MAX. MARKS: 100**

SECTION – A

ANSWER ALL THE QUESTIONS **(10 x 2 = 20)**

1. Nanomaterials are the materials with at least one dimension measuring less than _____
   a) 1 nm b) 10 nm
   c) 100 nm d) 1000 nm
2. Who defined the term nanotechnology?
   a) Gerd Binning b) Norio Taniguchi
   c) Gordon E. Moore d) Richard Feynman
3. A material with one dimension in Nano range and the other two dimensions are large is called _____
   a) Micro-material b) Quantum wire
   c) Quantum well d) Quantum dot
4. Write notes on 0-D nanostructures.
5. Which of the following is an example of Bottom-Up approach?
   a) Attrition b) Colloidal dispersion
   c) Milling d) Etching
6. Chemical solution deposition is also known as _____
   a) Sol-gel b) CVD
   c) Plasma spraying d) Laser pyrolysis
7. What are Biochips?
8. Coating the nano crystals with the ceramics is carried that leads to _____
   a) Corrosion b) Corrosion resistance
   c) Wear and tear d) Softness
9. Fluorophore nanocrystals are otherwise called as _____.
   a) fluors. b) quantum dots.
   c) nano fluors. d) micro fluors.
10. List any two uses of nanoencapsulations.

SECTION – B

ANSWER ALL THE QUESTIONS **(5 x 8 = 40)**

11. a. List out the milestones in the field of Nanotechnology.

OR

b. Write notes on i) Quantum confinement ii) Surface Plasmon Resonance

12. a. Give an account on metal-based nanomaterials.

OR

b. What are nano-composites? Explain.

13. a. Explain Chemical Vapor Deposition of Carbon Nanotubes.

OR

b. Write a note on the production of nanoparticles using Supercritical Fluid Technology.

14. a. List out the applications of nanomaterials in food industry.

OR

b. Discuss briefly the role of nanotechnology in bioremediation.

15. a. Give an account on the role of nanoparticles as bone substitutes.

OR

b. Enumerate the applications of nanoparticles in cancer therapy.

SECTION – C

ANSWER ANY TWO QUESTIONS **(2 x 20 = 40)**

16. Explain in detail electrical, magnetic, optical, thermal, and mechanical properties of nanostructured materials.
17. Present a detailed account on solid lipid nanoparticles (SLN) with their applications.
18. Discuss in detail nano-pharmaceuticals.
19. Give a detailed account on the biogenic and green synthesis of nanoparticles.

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