

Please check whether you have got the right question paper.

- N.B:
1. All questions carry equal marks.
 2. All questions are compulsory.
 3. Draw neat and well labeled figure wherever necessary.

Q.1 Explain in detail the significance of nanoscience and explain the types of nanomaterials. Discuss in detail magnetic, electrical and thermal properties of nanomaterials. (12)

OR

Q.1 Illustrate the concept and significance of nanomotors in biological system using ATP Synthase as an example. (12)

Q.2 Discuss the role of Sonochemistry in the synthesis of nanomaterials. Explain Hydrothermal treatment and 'Photochemical technique' for the synthesis of nanomaterials. (12)

OR

Q.2 Discuss and differentiate the concept of 'Top-Down' and 'Bottom Up' approach of synthesis of nanomaterials. Explain 'Gas-Phase syntheses and 'Photochemical technique' of synthesis of nanomaterials. (12)

Q.3 Explain all factors affecting the toxicological influence of nanomaterials on cell and special emphasis on cell membrane. (12)

OR

Q.3 Discuss phenomena of biostability and biocompatibility of nanomaterials in a biosystem. (12)

Q.4 Explain the role of nanomaterials during gene delivery, targeted drug delivery, prostheses and as diagnostic devices. (12)

OR

Q.4 Explain the role of nanomaterials as agents for neurodegenerative disorders, biodefence and implants. (12)

Q.5 Write notes on any THREE of the following: (12)
(a) Quantum Dots, (b) Nanocatalyst, (c) Proton sponge hypothesis,
(d) Hypersensitivity reaction, (e) Buck minister fullerene,
(f) Role of Cell penetrating peptides.
