

Roll.No.

22UPHCT5010

SHRIMATHI DEVKUNVAR NANALAL BHATT VAISHNAV COLLEGE FOR WOMEN
(AUTONOMOUS)

(Affiliated to the University of Madras and Re-accredited with 'A+' Grade by NAAC)

Chromepet, Chennai - 600 044.

B.Sc.Physics - END SEMESTER EXAMINATIONS - NOVEMBER 2025

SEMESTER - V

22UPHCT5010 - Fundamental of Nanoscience and Nanotechnology

Total Duration : 2 Hrs.30 Mins.

Total Marks : 60

Section B

Answer any **SIX** questions ($6 \times 5 = 30$ Marks)

1. Define 1D, 2D and 3D nanostructures. Give examples.
2. Explain top down and bottom up approach method for synthesis of nano particles.
3. Interpret the term X-ray diffraction. Obtain Braggs law.
4. Predict the mechanism of UV-Visible spectroscopy.
5. Predict the concept of bio sensors.
6. Illustrate the principle of nanosensor based on graphene.
7. Describe the theory of nano toxicology.
8. Examine briefly how nanotechnology can help for environmental remediation.

Section C

Answer any **THREE** questions ($3 \times 10 = 30$ Marks)

9. What is a carbon nanotube? Explain the discovery of C_{60} .
10. Explain the chemical vapour deposition technique used for synthesis of nano particles with the help of a diagram.
11. Examine the theory and working of Transmission Electron Microscope with a neat sketch.
12. Classify the nanoelectronic devices. Explain in detail.
13. Assess the medical and healthcare applications of nanotechnology.
