

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 - NOV'2024

SEMESTER - V

**22UPHCT5010 - Fundamentals 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. Describe on 1D, 2D and 3D nano structures with examples.
2. Enumerate how the properties of nano materials vary from bulk materials.
3. Brief on the ball milling method of producing nano materials.
4. Describe on the types of approaches for synthesizing nano materials.
5. Write short note on scanning electron microscopy and its application in characterizing nano materials.
6. Describe on spintronics.
7. List down the applications of nano electronics in energy.
8. Describe how nanotechnology is applied in immuno diagnostics for cancer.

**Section C**

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

9. Explain on the various forms of carbon based nanomaterials.
10. Elaborate on the types of vapour deposition techniques by which nano materials are synthesized.
11. Explain how the techniques of X - ray diffraction and Transmission Electron microscopy are used in the characterization of nano materials.
12. Discuss in detail the fabrication and characteristics of nanosensors.
13. Explain in detail the various applications of nanotechnology.

\*\*\*\*\*