

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 -2023

SEMESTER - V

20UPHCT5010 - 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. Explain in detail with examples nanomaterials of different sizes and shapes.
2. Write a note on the morphology of NPs and how physical and chemical characteristics depend on them.
3. Elaborate how XRD analysis is important in nanomaterial characterisation.
4. Explain in detail size and surface, morphological analysis of nanostructures using SEM.
5. What is the principle of spintronics?
6. Describe some recombination mechanisms. How they impact optoelectronic devices and what can be done to optimize recombination?
7. Elucidate the application of In Vivo testing in diagnosis.
8. Appraise the examples of environmental remediation.

Section C

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

9. Explain confinement effect and discuss about the magnetic, electrical and thermal properties of Nano Particles .
10. Explain in detail PVD and CVD methods of nano synthesis of films, coatings and their relative merits.
11. Explain with a neat diagram TEM setup and its use in analysing nanostructures.
12. Discuss the advantages and basic principles of nanosensors.
13. Explain in detail How can nanoparticles be used to identify tumors with in the body?
