

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.

M.Sc.(Physics) END SEMESTER EXAMINATIONS NOVEMBER - 2023

SEMESTER - III

**22PPHET3002 - NanoScience and Technology**

Total Duration : 2 Hrs. 30 Mins.

Total Marks : 60

### Section B

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

1. Interpret nanosized effects with an example.
2. Explain the terms nanoscience and Nanotechnology.
3. Distinguish nanostructured materials ceramics and composites.
4. Describe the working of electro spinning technique.
5. Classify different types of balls used in grinding.
6. Sketch the working of X-ray powder diffraction. And also find the distance between the adjacent Miller planes if wavelength of first-order X-rays is  $2.20 \text{ \AA}$  at  $27^\circ 8'$ .
7. Write a note on graphene based electronic devices.
8. Define and explain AMR effect.

### Section C

I - Answer any **TWO** questions ( $2 \times 10 = 20$  Marks)

9. Explain atomic structure and energy at the nano scale in detail.
10. Classify nanomaterials and nanostructures in nature.
11. Infer the construction and working of pulsed laser deposition with merits and demerits.
12. Compare the different types of storage devices and explain the role of nanoelectronics for memory devices.

II - Compulsory question ( $1 \times 10 = 10$  Marks)

13. Distinguish the construction and working of SEM, TEM with neat diagram.

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