

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. Chemistry - END SEMESTER EXAMINATIONS APRIL - 2024

SEMESTER - IV

22PCHET4005 - Introduction to Material Science

Total Duration : 2 Hrs. 30 Mins.

Total Marks : 60

Section B

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

1. Describe the classification of polymers.
2. Illustrate the properties of various synthetic rubbers.
3. Compare the optical and electrical properties at nanoscale materials.
4. Describe the energy band structure of semiconductors and quantum dots.
5. Illustrate the role of nanoparticles in cancer targeting and treatment.
6. Apply nanoparticles in pollution control measures.
7. Describe the comparison between SEM and TEM.
8. Determine the number and weight average molecular weights of polymers.

Section C

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

9. Explain the mechanism of the free radical polymerization process.
10. Apply suitable synthetic strategy to obtain the following polymers
(i)Teflon (ii)PVC (iii)Polystyrene (iv)PMMA
11. Elaborate the chemical vapour deposition to synthesis nanomaterials.
12. Diagnose the principle, theory and applications of X-Ray diffraction studies.

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

13. Assess the application of nanotechnology in agriculture, fertilizer and pesticides.
