

Time : 3 Hours

Max. Marks: 75

(No additional sheet will be supplied)

PART – A (5 x 3 = 15 marks)

Answer any FIVE Questions

Each question carries 3 marks

Each answer should not exceed 1 page

1. Symmetry elements in crystal solids
2. Electron and neutron diffraction
3. Mossbauer effect
4. ESR spectroscopy
5. Spin-spin and spin lattice coupling in NMR.
6. Applications of NQR
7. X-ray fluorescence spectroscopy
8. SEM

PART – B (4 x 15 = 60 marks)

Answer ALL Questions

Each question carries 15 marks

Each answer should not exceed 6 pages

9. Discuss the concept of reciprocal lattice and Ewald's sphere.
(OR)
10. Explain the principle involved in Oscillation and rotating crystal methods.
11. Write an essay on hyperfine splitting and g-factor.
(OR)
12. Explain the emission and absorption in Mossbauer effect.
13. Write about the important applications of NMR spectroscopy.
(OR)
14. Explain the basic concepts of NQR spectra.
15. Write an essay on importance of spectroscopic techniques.
(OR)
16. Explain the surface topographic techniques of Scanning electron Microscopy.

