

M. Sc. DEGREE EXAMINATIONS – MARCH 2016
IV SEMESTER
Material Science & Nano Technology
PAPER I – CHARACTERIZATION TECHNIQUES

45131

Time : 3 Hours

Max. Marks: 75

(No additional sheet will be supplied)

PART –A (5x3 = 15 marks)

Answer any FIVE questions.

Each question carries 3 marks.

Each answer should not exceed 1 page

1. Write a note on hyper chromic and hypsochromic shifts
2. Explain the chemical applications of atomic absorption spectrophotometer
3. What are the selection rules for infrared spectroscopy
2. Write a note on the applications of IR spectroscopy
5. Explain reciprocal lattice for fcc lattice
3. Explain importance of rotating crystal method
7. Explain the basic principle and applications of TGA
4. Discuss the interaction of electrons with matter

PART –B (4x15 = 60 marks)

Answer ALL questions.

Each question carries 15 marks.

Each answer should not exceed 6 pages

9. Explain the basic principle, working, construction and applications of UV- Visible spectrophotometer
- (OR)
10. What is atomic absorption spectrophotometer? Explain the instrumentation and spectral applications
 11. With a neat diagram, explain the construction and working of Fourier Transforms Infrared Spectroscopy. Explain its advantages.
- (OR)
12. Discuss the rotational and vibrational spectra of polyatomic molecule.
 13. Explain the Laue method of X-ray diffraction in detail.
- (OR)
14. Discuss the interpretation of power diffraction data using analytical and graphical methods.
 15. Discuss the Differential Scanning Calorimetry for the analysis of Polymer samples.
- (OR)
16. With a neat diagram, explain the construction and working of transmission electron microscope.

