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SCAS 307

- (b) *ESR Spectroscopy*: principle, g value, hyper fine splitting, qualitative analysis, Krammers degeneracy, fine splitting, instrumentation, introduction to double resonance technique, difference between ESR and NMR spectra, quantitative analysis, application to study of free radicals and other analytical applications.

#### Unit – IV : Spectroscopic Methods -4

- (a) *Mass Spectroscopy*: Principle, basic instrumentation, energetics of ion formation, types of peaks observed, resolution, qualitative analysis, molecular weight determination, quantitative analysis, advantages
- (b) *X-ray Spectroscopy (XRF)*: chemical analysis by X-ray spectrometers, energy dispersive and wavelength dispersive techniques, evaluation methods, instrumentation, matrix effects, applications.

#### Text Books:

1. Instrumental methods of analysis – H.H Willard, Meritt Jr. and J.A Dean
2. Principles of instrumental analysis – Skoog and West
3. Vogels Textbook of Quantitative Inorganic analysis – J. Basset, R.C Denney, G.H Jefferey and J.Madhan
4. Instrumental methods of analysis – B.K Sarma, Goel Publishing House, Meerut
5. Instrumental methods of Analysis – Chatwal and Anand
6. Instrumental methods of Analysis – Ewing
7. Handbook of ICP
8. The ICP – Bogdain B.

#### Reference Books:

1. Applications of ICP-MS, A.R Date and A.L Glay, London (Eds), Blackie, London
2. A. Moutaser and D.W Gologhtly (Eds), ICP in Analytical Atomic Spectrometry, VeH Publishers, New York
3. G.I Moore, Introduction to ICP emission Spectrometry in Analytical Spectroscopy, Elsevier, Amsterdam

M/SR

Dr. M. S. PRASADA RAO  
Professor of Inorganic Chemistry  
Dept. of Inorg. & Anal. Chem.  
Andhra University  
VISA KHAPATNAM-530003, India