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Name: .....

Reg.No. ....

**EIGHTH SEMESTER B.TECH DEGREE EXAMINATION, JUNE 2011**

**AI 04 802 - ANALYTICAL INSTRUMENTATION**

**Time : Three Hours**

**Maximum: 100 Marks**

- I (a) What is the need for spectral analysis? Explain.  
(b) Briefly explain the use of microprocessors in Photometry.  
(c) What is plasma excitation? Explain.  
(d) Write a note on FTIR.  
(e) State and explain Bragg's Law  
(f) What is the principle of operation of EXR spectrometer? Explain.  
(g) What is time of flight explain?  
(h) Explain the principle of operation of an Oxygen Analyser.
- (8 × 5 = 40)
- II (a) (i) Discuss in detail about the electromagnetic radiation and its interaction with matter.  
(ii) Briefly explain the operation of a Ultraviolet Spectrophotometer.  
(OR)  
(b) Explain in detail about  
(i) Single beam and Double beam photometers  
(ii) Visible and near IR photometers
- III (a) Describe the construction, operation and application of a Atomic absorption spectrometry.  
(OR)  
(b) Discuss in detail about the principles and instrumentation for thermal analysis.
- IV (a) Discuss in detail about the principles and instrumentation of  
(i) Raman Spectrometer  
(ii) X-Ray spectrometer  
(OR)  
(b) Discuss in detail about the Magnetic Resonance techniques and their applications.
- V (a) Explain the principle of operation of a Mass Spectrometer and its advantages.  
(OR)  
(b) Discuss in detail about the general principles of Chromatography and its types.
- (4 × 15 = 60)

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