

27170

Name:.....

Reg.No:.....

**EIGHTH SEMESTER B-TECH (ENGINEERING) DEGREE EXAMINATION, MAY 2012**

**AI 04 802 - ANALYTICAL INSTRUMENTATION**

Time: 3 hours

Max Marks : 100

(Answer all questions)

**Part A (8 x 5 marks = 40 marks)**

- I. (a) State and explain Beer's Law.  
(b) Compare Single beam and double beam photometers.  
(c) What is Plasma Excitation? Explain.  
(d) Write a note on FTIR and its drawbacks.  
(e) State and explain Bragg's Law.  
(f) Explain the principle of working of ESR Spectrometer.  
(g) How the dust and smoke are measured? Explain.  
(h) What are Industrial Analysers? Explain

**Part B (4 x 15 marks = 60 marks)**

- II (a) (i) Explain the working of a Spectrophotometry. Explain the filters ,  
Monochromators and detectors used in Spectrophotometers. (15)

(Or)

- (b) (i) Discuss in detail about near and visible IR photometers. (8)  
(ii) Explain the applications of microprocessors in Photometry. (7)

- III(a) Discuss in detail about Flame Emission and Atomic Absorption Spectrometry. (15)

(Or)

- (b) (i) Explain the various radiation sources. (7)  
(ii) Explain the principle and instrumentation of differential thermal analysis. (8)

- IV(a) State Raman Effect. Explain the principles and instrumentation of Raman Spectrometer. (15)

(Or)

- (b) Discuss in detail about principles and instrumentation of X-Ray Spectrometer. (15)

- V (a) Discuss in detail about Mass Spectrometry. (15)

(Or)

- (b) Discuss in detail about (i) Liquid Chromatography and (ii) Gas Chromatography. (15)

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