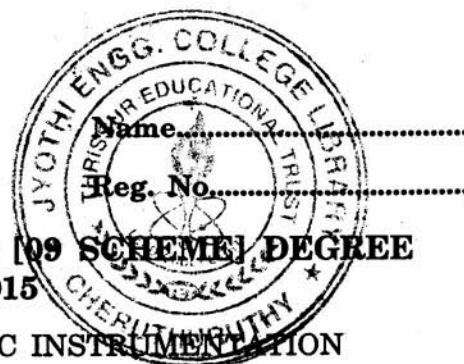


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**EIGHTH SEMESTER B.TECH. (ENGINEERING) [09 SCHEME] DEGREE  
EXAMINATION, APRIL 2015**

AI 09 801—ANALYTICAL AND OPTO ELECTRONIC INSTRUMENTATION

Time : Three Hours

Maximum : 70 Marks

**Part A**

*Short answer questions one / two sentences.  
All questions are compulsory.*

1. What is the function of filters in spectro photometry ?
2. Define chromatography.
3. Explain the principle of polarization.
4. Define interference.
5. What is the principle of optic fibre ?

(5 × 2 = 10 marks)

**Part B**

*Analytical or Problem solving questions.  
Answer four questions out of six.*

6. Write brief note on FTIR.
7. Explain nuclear magnetic resonance spectrometry.
8. Explain the principle of gas analyzer.
9. Write a note on single beam photometer.
10. Explain the construction of a hologram.
11. Write a brief note on losses in optical fibre.

(4 × 5 = 20 marks)

**Part C**

*Descriptive / Analytical / Problem solving questions.  
Answer all questions.*

12. (a) Explain the principle and working of infrared spectro photometer.

Or

- (b) Discuss in detail about flame emission and atomic absorption spectrometry.

13. (a) With the aid of necessary diagrams explain the principle and instrumentation of Raman spectrometry.

Or

**Turn over**

(b) Explain different types of mass spectrometry.

14. (a) Explain the working of a semiconductor laser.

*Or*

(b) Explain the working of Jamin and Mach-Zehndel interferometer.

15. (a) With refractive index profile explain step index single mode and step index multimode fibre.

*Or*

(b) (i) Write briefly about optic fibre fabrication.

(ii) Explain various properties of optic fibre.

(4 × 10 = 40 marks)