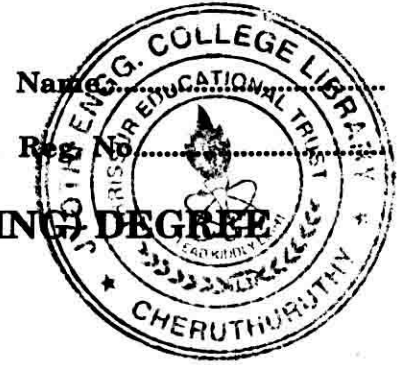


C 60500

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**EIGHTH SEMESTER B.TECH. (ENGINEERING) DEGREE  
EXAMINATION, APRIL 2014**

(2009 Scheme)

Applied Electronics and Instrumentation Engineering

AI 09 801 – ANALYTICAL AND OPTO-ELECTRONIC INSTRUMENTATION

Time : Three Hours

Maximum : 70 Marks

**Part A**

*Answer all questions.*

1. What is the role of a filter?
2. State the principle of a chromatograph.
3. What is population inversion?
4. Name the losses in an optical fibre.
5. List out the advantages of light emitting diodes.

(5 × 2 = 10 marks)

**Part B**

*Answer any four questions.*

6. Differentiate between Single beam and Double beam photometers.
7. How will you measure smoke and dust?
8. What are optocouplers?
9. Mention the properties of LASER.
10. List out the applications of holography.
11. Differentiate between Step index and Graded index fibres.

(4 × 5 = 20 marks)

**Part C**

*Answer all questions.*

12. (a) Describe in detail about various radiation sources and detectors.

*Or*

- (b) Discuss in detail about the working principle of an ultraviolet spectro-photometer.

(10 marks)

**Turn over**

13. (a) Explain the working principle of an X-ray Spectro-photometer with a neat sketch.

Or

(b) Explain in detail about working principle of a thermal conductivity type gas analyzer.

(10 marks)

14. (a) Explain the working principle of a Semiconductor type LASER.

Or

(b) Describe in detail about Avalanche photodiode and PIN photodiode detectors.

(10 marks)

15. (a) Explain in detail about holographic interferometry.

Or

(b) Discuss in detail about fibre optic sensors for measuring temperature and liquid level.

(10 marks)

[4 × 10 = 40 marks]