C 80507 (Pages : 2)

Name.....

Reg. No.....

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)