

B.TECH. DEGREE EXAMINATION, MAY 2014**Seventh Semester**

Branch : Applied Electronics and Instrumentation / Electronics and Instrumentation /
Instrumentation and Control Engineering

AI 010 704/EI 010 704/IC 010 704—ANALYTICAL INSTRUMENTATION (AI, EI, IC)

(Improvement/Supplementary—2010 Admissions)

Time : Three Hours

Maximum : 100 Marks

Part A

*Answer all questions.
Each question carries 3 marks.*

1. What is Stimulus? Explain.
2. Explain about the origin of Atomic Spectroscopy.
3. Why is ESR stronger than NMR spectrum lines? Explain.
4. What are the properties used by thermal session ?
5. Explain about Retention time.

(3 × 3 = 15 marks)

Part B

*Answer all questions.
Each question carries 5 marks.*

6. Discuss about the deviation from Beer's law.
7. Explain about spectro fluorimeter.
8. Discuss about the analogy between mass spectroscopy and optical spectroscopy.
9. Explain about radiation sensors.
10. Discuss about thin-film chromatography.

(5 × 5 = 25 marks)

Part C

*Answer all questions.
Each question carries 12 marks.*

11. (a) Derive and explain laws of photometry.

Or

- (b) Discuss about thermal detectors used in IR spectrometer with diagram.

Turn over

12. (a) With neat sketch, explain about the working principle of direct current plasma.

Or

(b) Explain the theory of Raman spectroscopy.

13. (a) With a neat sketch, write the detailed operation of mass spectrometer.

Or

(b) Explain about the principle and operation of NMR spectrometer.

14. (a) Discuss about the operation of dissolved oxygen analyzers.

Or

(b) Explain about bio-chemical sensors.

15. (a) Explain about sample injection system of GC.

Or

(b) Discuss about different parts of HPLC.

(5 × 12 = 60 marks)

