



C16-AEI-404

6417

BOARD DIPLOMA EXAMINATION, (C-16)  
OCT/NOV—2018  
DAEI-FOURTH SEMESTER EXAMINATION

ANALYTICAL INSTRUMENTATION

Time : 3 hours ]

[ Total Marks : 80

PART—A

3×10=30

- Instructions :** (1) Answer **all** questions.  
(2) Each question carries **three** marks.  
(3) Answers should be brief and straight to the point and shall not exceed **five** simple sentences.

1. Define the terms atomic spectroscopy and molecular spectroscopy.
2. State the Beer-Lambert law.
3. List the applications of polarimeter.
4. Draw the block diagram of zirconia gas analyzer.
5. List the advantages of mass spectrometer.
6. State the principle of a mass spectrometer.
7. Define the terms absorption and adsorption.
8. List the applications of liquid chromatography.

\* 9. State the effect of temperature on pH.

10. List the properties of alpha particles.

**PART—B**

10×5=50

**Instructions :** (1) Answer *any five* questions.

(2) Each question carries **ten** marks.

(3) Answers should be comprehensive and the criterion for valuation is the content but not the length of the answer.

11. Explain the principle of operation of visible spectrophotometer with diagram.

12. Explain the principle of operation of IR spectrophotometer with diagram.

13. Explain the principle of operation of interferometer with diagram.

14. Explain the principle of operation of electrochemical gas analyzer with diagram.

15. Derive the expression for mass charge ratio (m/e) of mass spectrometry.

16. Explain the principle of operation of the gas chromatography with diagram.

17. Explain the measuring and reference electrodes used for pH measurement.

\* 18. Explain the working of ionization chamber detection method with diagram.

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