



C20-AEI-406

7418

BOARD DIPLOMA EXAMINATION, (C-20)

OCTOBER/NOVEMBER—2023

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 molecular spectroscopy.
2. State the Beer-Lambert law.
3. List the components of monochromator.
4. List three applications of auto analyzer.
5. List three applications of mass spectrometer.
6. Define absorptions.
7. Draw the diagram of liquid chromatography.
8. State the importance of pH.
9. List the types of radiation detector.
10. List any three properties of beta particles.

- Instructions :** (1) Answer **all** questions.
(2) Each question carries **eight** marks.
(3) Answers should be comprehensive and criterion for valuation is the content but not the length of the answer.

11. (a) Explain, with a diagram the principle of operation of visible spectrophotometer and mention two applications.

(OR)

(b) Explain the block diagram of analytical instrumentation.

12. (a) Explain the principle of operation of interferometer and list any three applications.

(OR)

(b) Explain the principle of operation of electro chemical gas analyzer and list three applications.

13. (a) Explain the operation of single deflection 180° mass spectrometer with a schematic diagram.

(OR)

(b) Explain the block diagram of mass spectrometer.

14. (a) Explain the measuring and reference electrodes used for pH measurement.

(OR)

(b) Explain conductivity cells with a diagram.

15. (a) Explain the method of detection of neutrons.

(OR)

(b) Explain the working of Geiger-Müller detection method with a diagram.

PART—C

10×1=10

- Instructions :** (1) Answer the following question.
(2) The question carries **ten** marks.
(3) Answer should be comprehensive and the criterion for valuation is the content but not the length of the answer.

16. Draw and explain gas chromatography and list three applications.

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