



C16-AEI-404

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BOARD DIPLOMA EXAMINATION, (C-16)

AUGUST/SEPTEMBER—2021

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 term spectroscopy.
2. State the Beer-Lambert Law.
3. List any three applications of refractometer.
4. List any three applications of paramagnetic gas analyzer.
5. State the principle of mass spectrometry.
6. List any three applications of mass spectrometer.
7. Define the term absorption.
- * 8. List any three applications of liquid chromatography.
9. State the principle of pH measurement.
10. List the types of radiation.

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PART—B

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

11. (a) Explain the block diagram of analytic instrumentation. 6
(b) Draw the diagram of electromagnetic spectrum. 4
12. Explain the principle of operation of IR spectrophotometer with diagram and mention any three applications. 10
13. Explain the principle of operation of flame photometer with diagram and mention any three advantages. 10
14. Draw and explain the principle of operation of paramagnetic gas analyzer. 10
15. Explain the principle of operation of single deflection 180° mass spectrometer with schematic diagram and mention any three applications. 10
16. Explain the principle of operation of the gas chromatography with diagram and mention any three applications. 10
17. (a) Describe the measuring and reference electrodes used for pH measurement with diagram. 5
(b) Draw and explain the principle of operation of conductivity meter. 5
18. Explain the principle of operation of Geiger-Muller method and mention any three applications. 10

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