



C09-AEI-405

3415

BOARD DIPLOMA EXAMINATION, (C-09)
OCT/NOV—2017
DAEIE—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 conductivity.
2. State the importance of pH measurement.
3. Draw the diagram of fluid dynamic-type densitometer.
4. Draw the electromagnetic spectrum.
5. List any three applications of UV spectrophotometer.
6. Draw the diagram of paramagnetic gas analyzer.
7. List any three applications of spectrofluorometer.
8. Draw the diagram of interferometer.

* 9. State the principle of mass spectroscopy.

10. Define chromatography.

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. Draw and explain the conductivity cell.

12. (a) Explain the working of measuring electrode. 5

(b) Draw the diagram of liquid chromatography. 5

13. Explain the principle of operation of falling ball viscometer with a diagram.

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

15. Draw and explain the block diagram of analytical instrumentation.

16. With the help of a diagram, explain the principle of operation of refractometer.

* 17. Explain the principle of operation of zirconia gas analyzer with a diagram.

18. Derive the expression for mass charge (m/e) ratio in mass spectrometer.
