



C09-AEI-405

3415

BOARD DIPLOMA EXAMINATION, (C-09)
OCT/NOV—2013
DAEIE—FOURTH SEMESTER EXAMINATION
ANALYTICAL INSTRUMENTATION

Time : 3 hours]

[Total Marks : 80

PART—A

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. Give the importance of pH measurement.
2. Define conductivity.
3. Give the importance of viscosity measurement.
4. Draw the diagram of visible spectrometer.
5. State the limitations of Beer-Lambert law.
6. List the specifications of flame photometer.
7. Draw the diagram of paramagnetic gas analyzer.
8. List the applications of thermal conductivity gas analyzer.

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9. Draw the block diagram of mass spectrometer.
10. List the applications of liquid chromatography.

PART—B

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. (a) Explain the principle of pH measurement. 7
(b) Explain the temperature compensating methods in pH measurement. 3
12. Explain the displacement-type density measurement. 10
13. Explain prism and grating. 10
14. Explain the principle of operation and description of IR spectrometer. 10
15. Explain the principle of thermal conductivity gas analyzer with a neat sketch. 10
16. Explain the principle, construction and working of refractometer. 10
17. Explain the principle of construction and working of gas chromatography. 10
18. (a) Derive an expression for m/e ratio. 5
(b) Describe conductivity compensator. 5
