



C09-AEI-405

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**BOARD DIPLOMA EXAMINATION, (C-09)
MARCH/APRIL—2013
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) Answer should be brief and straight to the point and shall not exceed *five* simple sentences.

1. Define pH and conductivity.
2. State necessity of conductivity cell.
3. Explain the necessity of density measurement.
4. Draw the block diagram of analytical instrumentation.
5. Explain about various light sources used for visible and UV spectrophotometers.
6. List out the applications of spectrofluorimeters.
7. Explain the principle of operation of interferometer.

8. List the application of autoanalyser.
9. Explain the principle of mass spectrometer.
10. Give the classification of 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. Describe the measuring electrode and reference electrode. 10
12. Explain the principle of operation of capillary viscometer. 10
13. (a) State Beer-Lambert law. What are the limitations of Beer-Lambert law? 5
(b) Explain the principle of prism monochromator. 5
14. Explain the construction and working of infrared spectrophotometer. Give any two applications. 10
15. Explain the principle of construction and working of a flame photometer. 10
16. Explain the principle of construction and working of thermal conductivity gas analyser. 10

- 17.** (a) List the applications of mass spectrometer. 5
(b) Describe the conductivity compensatory. 5
- 18.** Draw and explain the block diagram of liquid chromatography. 10
