



C09-AEI-405

**3415**

**BOARD DIPLOMA EXAMINATION, (C-09)**  
**APRIL/MAY—2015**  
**DAEIE—FOURTH SEMESTER EXAMINATION**  
**ANALYTICAL INSTRUMENTATION**

Time : 3 hours ]

[ Total Marks : 80

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**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 pH.
2. Describe the principle of conductivity compensation.
3. Draw a neat diagram of rotating viscometer.
4. Draw the block diagram of analytical instrumentation.
5. List the different light sources for visible, UV and IR spectrometers.
6. What is meant by refractive index?
7. Explain the principle of paramagnetic gas analyser.
8. Draw a neat sketch of CO analyser.

\* 9. List the applications of mass spectroscopy.

10. List the types 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. Explain the principle of operation of conductivity meter. 10

12. (a) Describe the measuring electrode. 5

(b) Describe the operation of liquid chromatography. 5

13. Explain the principle, construction and working of fluid dynamic type viscometer. 10

14. (a) Explain Beer-Lambert law. 3

(b) Draw and explain electromagnetic spectrum. 7

15. Explain the principle, construction and working of an IR spectrophotometer. 10

16. With a neat diagram, explain the principle, construction and working of flame photometer. 10

17. Explain the principle of operation and construction of thermal conductivity gas analyser. 10

\* 18. Explain the principle, construction and working of a mass spectrometer. 10

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