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C09–AEI–405

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BOARD DIPLOMA EXAMINATION, (C–09)

OCT/NOV—2016

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. State the importance of pH measurement.

2. Define conductivity.

3. State the necessity of density measurement.

4. List different types of visible light source.

5. List different types of light detector.

6. List the applications of polarimeter.

7. Draw the block diagram of flame photometer.

8. State the principle of Zirconia-type gas analyzer.

9. List the advantages of mass spectrometer.

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. Explain the block diagram of digital pH meter. 10

12. Explain the working principle of falling ball viscometer. 10

13. Explain the block diagram of analytical instrumentation. 10

14. Explain the working principle of IR spectrometer. 10

15. Explain the working principle of refractometer. 10

16. Explain the working principle of thermal conductivity-type gas analyzer. 10

17. Explain the working principle of gas chromatography. 10

18. *(a)* Derive the expression for m/e of mass spectrometer. 5

(b) Explain the effect of temperature on pH. 5

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