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C09–AEI–405

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BOARD DIPLOMA EXAMINATION, (C–09)

MARCH/APRIL—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. List any three specifications of digital pH meter.

2. State the necessity of conductivity cells.

3. Draw the diagram of rotating viscometer.

4. Draw the block diagram of analytical instrumentation.

5. List any three IR light detectors.

6. Draw the diagram of polarimeter.

7. State the principle of thermal conductivity-type gas analyzer.

8. Draw the diagram of CO analyzer.

9. Classify chromatography.

10. List any three advantages of spectrometer.

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 with a diagram.

12. *(a)* Explain the principle of pH measurement. 5

(b) Draw the diagram of gas chromatography. 5

13. Explain the working of capacitance-type densitometer with diagram.

14. *(a)* State Beer Lambert's law. 3

(b) Draw and explain electromagnetic spectrum. 7

15. Explain the principle of operation of UV spectrophotometer with diagram.

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

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

18. Explain the principle and working of mass spectrometer with a diagram.

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