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C14–AEI–505

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BOARD DIPLOMA EXAMINATION, (C–14)

OCT/NOV—2016

DAEIE—FIFTH 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 properties of beta particles.

2. List any three properties of neutrons.

3. Draw the electromagnetic spectrum.

4. List different types of visible, UV and IR light detectors.

5. Define the term spectroscopy.

6. Draw the diagram of polarimeter.

7. List the applications of mass spectrometer.

8. State the principle of mass spectrometer.

9. List the components of a gas chromatography.

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 scintillation counter detection method with legible diagram.

12. Explain the principle of operation of visible spectrophotometer and list the applications.

13. Explain the principle of operation of IR spectrophotometer and list the applications.

14. Explain the principle of operation and applications of flame photometer with legible diagram.

15. Explain the principle of operation and applications of thermal conductivity type analyzer.

16. Explain the principle of operation and applications of interferometer.

17. Derive the expression for mass-charge (m/e) ratio of mass spectrometer.

18. Explain the principle and applications of the liquid chromatography.

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