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C16–AEI–**404**

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BOARD DIPLOMA EXAMINATION, (C–16)

SEPTEMBER/OCTOBER - 2020

DAEI—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. Define the term 'atomic spectroscopy'.

2. Define prism monochromator.

3. Draw the block diagram of paramagnetic gas analyzer.

4. State the principle of Polarimeter.

5. List the advantages of mass spectrometer.

6. Draw the block diagram of single deflection 180° mass spectrometer.

7. List the applications of gas chromatography.

8. Define chromatography.

9. Define the term 'conductivity'.

10. List the properties of alpha particles.

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 and applications of IR spectrophotometer.

12. Explain the block diagram of analytical instrumentation.

13. Explain the principle of operation and applications of electrochemical gas analyzer.

14. Explain the principle of operation and applications of polarimeter.

15. Explain the block diagram of mass spectrometer.

16. *(a)* Differentiate between absorption and adsorption. 5

(b) Classify chromatography. 5

17. Explain the measuring and reference electrodes used for pH measurement.

18. Explain the working of Geiger-Muller detection method with diagram.

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