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(Revision – 2015/19)

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Reg. No……
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DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/ MANAGEMENT/COMMERCIAL PRACTICE, APRIL - 2025

ANALYTICAL INSTRUMENTATION

[Maximum Marks: **100**] [Time: **3** Hours]

PART-A

[Maximum Marks: **10**]

I. (Answer ***all*** questions in one or two sentences. Each question carries ***2*** marks)

1. Define emission spectrum.
2. Write any two basic components of flame photometer.
3. Define pH scale.
4. List out two principles of chromatography.
5. Name any two industrial gas analyzers. (5 x 2 = 10)

PART-B

[Maximum Marks: **30**]

II. (Answer ***any five*** of the following questions. Each question carries ***6*** marks)

1. State and explain the fundamental laws of photometry.
2. Explain the working of single beam spectrophotometer.
3. Describe the principle of flame photometer.
4. State and explain Raman Effect.
5. Describe the Classification of chromatography.
6. Explain the working of Hydrogen electrode.
7. Explain the working of Thermal conductivity gas analyser. (5 x 6 = 30)

PART-C

[Maximum Marks: **60**]

(Answer ***one*** full question from each Unit. Each full question carries **15** marks)

UNIT – I

III. a. Describe the working of double beam spectrophotometer. (8)

b. Describe the basic components of I.R spectrophotometer. (7)

OR

IV. a. Illustrate the working of double beam filter photometer. (8)

b. Draw and explain electromagnetic spectrum. (7)

UNIT – II

V. a. Explain the working of Raman spectrometer with neat diagram. (8)

b. Describe the principle of NMR spectrometer. (7)

OR

VI. a. Explain the working of flame photometer with neat diagram. (8)

b. Explain the working of time of flight mass spectrometer with neat diagram. (7)

UNIT- III

VII. a. Explain the working of glass electrode. (8)

b. Explain the working of high pressure liquid chromatograph. (7)

OR

VIII. a. Explain the working of combined pH electrode. (8)

b. Illustrate the working of gas chromatograph. (7)

UNIT - IV

IX. a. Describe working of magnetic force type paramagnetic oxygen analysers. (8)

b. Explain the principle of IR analyser. (7)

OR

X. a. Illustrate the working of positive filter type IR analyser. (8)

b. Explain the principle of electrical conductivity analyser. (7)

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