

**DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/
MANAGEMENT/COMMERCIAL PRACTICE, APRIL – 2024**

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. List the various regions in an Electromagnetic Spectrum.
2. Define Absorption spectrum.
3. Write the basic components of Flame Photometer.
4. List the classification of Chromatography.
5. Define Paramagnetism.

(5 x 2 = 10)

PART-B

[Maximum Marks: **30**]

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

1. Describe the working of IR Spectrophotometer.
2. Describe the working of Raman Spectrophotometer.
3. Explain the working of Time-of-Flight Mass spectrometer.
4. Explain Dip and Flow type Industrial Electrode Assemblies.
5. Explain the construction of Hydrogen Electrode.
6. Explain the working of Thermal Conductivity Gas analyzer.
7. Explain the working of Magnetic Force type Paramagnetic Oxygen Analyzer.

(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. Explain the construction and working principle of Single beam Spectrophotometer. (9)
- b. Explain fundamental laws of Photometry. (6)

OR

- IV. Explain the construction and working principle of Double beam filter photometer. (15)

UNIT – II

- V. Explain the construction and working of Magnetic Deflection type mass Spectrometer. (15)

OR

- VI. Explain the construction and working of Flame Photometer. (15)

UNIT- III

- VII. Explain the construction and working of Gas Chromatograph. (15)

OR

- VIII. a. Explain the construction and working of Calomel Electrode. (9)
b. Draw Combined pH electrode and mark its parts. (6)

UNIT - IV

- IX. a. Explain the construction and working Positive Filter type IR Analyzer. (9)
b. Explain the working of Electrical Conductivity analyzer. (6)

OR

- X. Explain the construction and working Negative Filter type IR Analyzer. (15)
