

**DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/MANAGEMENT/
COMMERCIAL PRACTICE, APRIL - 2025**

INDUSTRIAL INSTRUMENTS - II

[Maximum marks: 100]

[Time: 3 Hours]

PART – A

Maximum marks: 10

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

1. State Bernoulli's theorem.
2. Define Reynold's number.
3. Define moisture.
4. Name any two types of load cells.
5. List the disadvantages of electromagnetic flowmeter. (5 x 2 = 10)

PART – B

Maximum marks: 30

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

1. Distinguish between laminar and turbulent flow.
2. Briefly discuss the principle of operation of variable area flow meter.
3. Illustrate the working of turbine flow meters.
4. Explain the open channel flow measurement by rectangular notch.
5. Explain the construction and working of Saybolt's viscometer.
6. Describe the operation of dew cell.
7. Describe the operation of hydraulic load cell. (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) Derive continuity equation. (7)
- (b) Describe the working of Pitot tube. (8)

OR

- IV.** (a) Explain the method of measurement of flow using orifice meter. (8)
(b) Describe the working of flow nozzle. (7)

UNIT – II

- V.** (a) Describe the working of ultra-sonic flow meters. (7)
(b) Discuss about Notches and Weirs. (8)

OR

- VI.** (a) Explain the construction and working of electromagnetic flowmeter. (8)
(b) Describe the working of Reciprocating piston flowmeter. (7)

UNIT - III

- VII.** (a) Illustrate the working of hair type hygrometers. (7)
(b) With neat sketch explain the dew point measurement using cold mirror. (8)

OR

- VIII.** (a) Explain the construction and working of Red wood viscometer. (7)
(b) Explain the construction and working of hydrometer. (8)

UNIT – IV

- IX.** (a) Describe the force measurement using strain gauge load cell. (7)
(b) Explain the measurement of shaft speed using stroboscope. (8)

OR

- X.** (a) Explain the construction and working of seismic accelerometer. (8)
(b) Describe about mechanical tachometer with neat sketch. (7)
