

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

AIRCRAFT INSTRUMENTS

[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. List any two powerplant instruments.
2. Define Lever Length.
3. State the term Pitot Pressure.
4. Define Precession of gyroscope.
5. Write two flight data recorders.

(5 x 2 = 10)

PART – B

Maximum marks: 30

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

1. Draw the schematic diagram of Gear mechanism.
2. Explain the operation of Dual indicator displays in instruments.
3. Describe Heating Circuit arrangements in Pitot probe.
4. Explain the fundamental properties of Gyroscope.
5. Describe elements and degrees of freedom of Gyroscope.
6. Draw surface contact and immersion Thermocouples.
7. Describe the operation of Trace recording.

(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 working of LCD Displays in Aircraft. (8)
- (b) Describe the operation of Director displays. (7)

OR

- IV.** (a) Explain the working of Lever mechanism used in instruments. (8)
(b) With neat diagram, explain Straight scale Displays. (7)

UNIT - II

- V.** (a) Explain the working of Vertical Speed indicator. (7)
(b) Describe the working of Aneroid Barometer. (8)

OR

- VI.** (a) Describe the working of Altimeter. (8)
(b) Explain the operation of Airspeed indicator. (7)

UNIT - III

- VII.** (a) Explain Electrically operated Engine Speed indicator mechanism. (10)
(b) Draw the schematic diagram of Tacho Probe. (5)

OR

- VIII.** (a) Describe the working of Gyro horizon/Artificial Horizon. (10)
(b) Draw the figure of Torquer Motor indicating system. (5)

UNIT – IV

- IX.** (a) Explain the working of Radiation Pyrometer. (8)
(b) Describe the operation of Pressure Switch. (7)

OR

- X.** (a) Explain the working of Capacitance type Fuel gauge system used in aircrafts. (10)
(b) Draw the figure of Accelerometer. (5)
