

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

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 the displays used in aircrafts.
2. Write the application of pitot static system.
3. Define degrees of freedom of Gyroscope.
4. List the methods used in driving gyroscopic rotor.
5. Write the principle of thermocouple.

(5 x 2 = 10)

PART – B

Maximum marks: 30

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

1. Explain straight scale display.
2. Explain lever mechanism in indicating instruments.
3. Describe any two-heating circuit arrangement in pitot tube.
4. Explain aneroid barometer with a neat diagram.
5. Define the terms pitch, bank, turn.
6. Explain pressure switch.
7. Describe trace recording in flight data 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) Describe coloured display and dual indicator display. (8)
- (b) Explain gear mechanism used in aircraft indicators. (7)

OR

- IV.** (a) Explain head up display. (8)
(b) Explain LED display. (7)

UNIT - II

- V.** (a) Describe the working of pitot static probe used in aircraft instruments. (8)
(b) Explain the working of Mach meter. (7)

OR

- VI.** (a) Explain the working of vertical speed indicator. (8)
(b) Explain the sensing and transmission of Pitot pressure and Static Pressure. (7)

UNIT - III

- VII.** (a) Explain the construction and working of Tacho probes. (8)
(b) Explain gyro horizon. (7)

OR

- VIII.** (a) Explain pneumatic method of driving gyroscope rotor. (8)
(b) Explain the fundamental properties of gyroscope. (7)

UNIT - IV

- IX.** (a) Explain radiation pyrometer for exhaust gas temperature measurement. (9)
(b) Explain the mandatory parameters to be recorded in aircrafts. (6)

OR

- X.** (a) Explain the working of Capacitance type fuel gauge used in aircraft. (8)
(b) Describe the working of accelerometer. (7)
