

**DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/MANAGEMENT/  
COMMERCIAL PRACTICE, APRIL-2022**

**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. Write any two advantages of straight scale displays.
2. Define static pressure.
3. Define Mach number.
4. List different types of temperature sensors used in aircrafts.
5. List the methods used in driving gyroscopic rotor.

(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 temperature compensation method using bimetal strips.
2. Describe coloured display and dual indicator display.
3. With neat diagram explain aneroid barometer.
4. Explain any two heating circuit arrangement in pitot tube.
5. Define pitch bank and turn.
6. Explain the operation of inductor pressure transmitter.
7. Explain 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 how hair springs are used for controlling applications in instrument. (8)
- (b) With neat diagrams explain circular scale displays. (7)

OR

- IV.(a) Describe lever mechanism with necessary diagrams. (8)  
(b) Explain the construction and working of LCD display. (7)

**UNIT-II**

- V. (a) Describe the working of pitot static probe used in aircraft instruments. (7)  
(b) Describe the working of vertical speed indicator. (8)

OR

- VI. (a) With neat diagram, explain the working of mach meter. (8)  
(b) Write short notes on pitot pressure. (7)

**UNIT-III**

- VII. (a) Explain the construction and working of tacho probes. (8)  
(b) Explain the fundamental properties of gyroscope (7)

OR

- VIII.(a) Explain vacuum driven pneumatic method of driving gyroscope rotor. (8)  
(b) Describe different degrees of freedom of gyroscope. (7)

**UNIT-IV**

- IX. (a) Explain electromagnetic recording. (8)  
(b) With neat sketch explain the working of accelerometer used in aircraft. (7)

OR

- X. (a) Explain radiation pyrometer for exhaust gas temperature measurement. (8)  
(b) Describe the working of capacitance type fuel gauge used in aircrafts. (7)

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