

### SECTION-C

**Note:** Long answer type questions. Attempt any three questions. 3x10=30

- Q.3 Explain all the Pitot tube based instruments used in aircrafts.
- Q.4 Explain the working of thermal sensors and fuel flow gauges used in aircraft systems.
- Q.5 Name the different types of gyro based instruments and explain the working of directional gyro.
- Q.6 What is the requirement of inspection and maintenance of instruments? Describe the procedure for it.
- Q.7 Explain the terms calibrated air speed, ground speed, altitude, service ceiling, AGL, attitude and vertical speed. Show the working of rate of climb indicator.

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**4th Sem. / AME**

**Subject : Aircraft Instruments**

Time : 3 Hrs.

M.M. : 100

### SECTION-A

**Note:** Very Short Answer type questions. Attempt any 15 parts. (15x2=30)

- Q.1 a) What are the sources of errors in instruments?
- b) Explain the working of vertical speed indicator.
- c) What are different types of aircraft instruments?
- d) What is the principle of altimeter?
- e) Name the Pitot based instruments and explain the function of altimeter.
- f) How the leak is tested in Pitot tubes?
- g) What is a fuel flow gauge?
- h) Show the pressure tapping of a rate of climb indicator.

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- i) What are the different airspeeds associated with aircraft.
- j) What is calibrated air speed?
- k) What is the working principle of RPM indicator?
- l) How the rotational speed of a propeller is measured.
- m) What is artificial horizon?
- n) What are the quality certificates in aviation?
- o) What is TQM?
- p) Name the manifold pressure indicators.
- q) What is manifold pressure gauge? How does it work?
- r) Explain angle of attack measurement system.

### SECTION-B

**Note:** Short answer type questions. Attempt any ten parts  
10x4=40

- Q.2
- i) State the procedure to find true airspeed?
  - ii) On the working principle classify aircraft instruments.

- iii) Starting from the beginning show the procedure to find airspeed through Pitot based sensor.
- iv) Briefly explain the working of vertical speed indicator.
- v) Explain the working principle of thermocouple.
- vi) Explain the working of different pressure transducer.
- vii) Based on the working name the different RPM indicators.
- viii) Explain the working of a directional gyro.
- ix) What is the significance of artificial horizon?
- x) Describe different types of RPM indicators.
- xi) Describe function of fuel flow gauge.
- xii) What are the precautions to be taken in replacement of instruments?
- xiii) Which electrically operated instruments are used in aircrafts?
- xiv) Explain the working of Gyro wheel.
- xv) Write a note on ISO9000/AS9100.