

**Aeronautical Instrumentation (15EI552)**

**Time :3 Hours**

**Max. Marks :80**

NOTE: answer five full questions choosing one full question from each module

**Module -1**

1. a) Differentiate between qualitative and quantitative displays in Aircraft Instrumentation. (04marks)
- b) Discuss the Basic T arrangement method of display used in instrument grouping. (06 marks)
- c) Explain the operation of Attitude Director Display(ADI) unit with respect to pitch and roll indication. (06 marks)

OR

2. a) Describe the principle and working of Pneumatic type basic pitot static system in aircraft system. (06 marks)
- b) Define the term international standard atmosphere. List the assumptions made for the same. (04marks)
- c) Differentiate between vertical speed indicator and instantaneous vertical speed indicator. Explain the working of instantaneous vertical speed indicator. (06 marks)

**Module -2**

3. a) With a neat diagram, explain construction and working of Altimeter in aircraft. (08 marks)
- b) Discuss the working of Mach warning system in Aeronautical Instrumentation. (08 marks)

OR

4. a) Discuss the working of Attitude alert system in Aircraft Instrumentation. (08 marks)
- b) With a neat block diagram explain the working of Air speed warning system. (08 marks)

**Module -3**

5. a) Draw diagrams to illustrate the relationship between the earth's magnetic components and magnetic dip at the equator and at the magnetic poles (06marks)
- b) Explain how the effects of temperature change in an aircraft compass are compensated. (06 marks)
- c) Define term magnetic meridian and magnetic variation in direct reading compass. (04 marks)

OR

6. a) By means of diagrams describe how the fluxes and voltages are induced in detector elements. (08 marks)

- b) Describe the general construction of remote indicating compass directional gyro element. (08 marks)

**Module -4**

7. a) Illustrate working principle of Ring laser Gyro. List its advantages and disadvantages. (06 marks)  
b) Discuss the two fundamental properties of Gyroscope. (04 marks)  
c) Discuss the working of conventional Mechanical Gyro with neat diagram. (06 marks)

OR

8. a) With neat diagram, give the description of direction indicator used in aircraft. (08 marks)  
b) With relevant sketches, explain turn and bank/slip indicator used in aircraft. (08 marks)

**Module -5**

9. a) With a neat figure describe the construction and working Synchronous transmission type pressure indicating system. (06 marks)  
b) With a neat figure, explain constructional details of a typical temperature sensing element in aircraft. (04marks)  
c) Elaborate on working of measurement of fuel quantity by weight in aircraft system. (06 marks)

OR

10. a) With a neat diagram, describe the constructional details of integrated impellor type flow meter system used in aircraft. (06 marks)  
b) Discuss the working of Torque monitoring system in aircraft. (04 marks)  
c) With a neat figure, Describe the concept of densitometer used in aircraft for the measurement of fuel quantity. (06 marks)