

Roll No.

Total No. of Pages : 02

Total No. of Questions : 09

B.Tech.(ANE) (Sem.-5)

AIRCRAFT SYSTEMS AND INSTRUMENTATION

Subject Code : ANE-311

M.Code : 60520

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTION TO CANDIDATES :

1. **SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.**
2. **SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.**
3. **SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.**

SECTION-A

1. Answer briefly :

- (a) What do you mean by gyroscopic instruments? List various gyroscopic instruments used in a transport aircraft.
- (b) List the basic instruments coming under engine control system.
- (c) Explain briefly the tolerance levels of a pilot when flying at varying altitudes.
- (d) Explain the function of throttle levers.
- (e) What is the function of a turn-coordinator?
- (f) What are high lift devices? List at least five high lift devices.
- (g) What do you mean by 'Ram Air Cooling'? What is its importance?
- (h) Distinguish between 'Anoxia' and 'Hypoxia'.
- (i) Explain the use of pitot static system with the help of a sketch.
- (j) Explain briefly the function of dump valves with respect to fuel system of an aircraft.

SECTION-B

2. Explain the function and working principle of a directional gyroscope.
3. Explain the function and working principle of Mach meter with the help of a sketch.
4. Explain the function of various components of mechanical flight control system with the help of sketches.
5. Explain the working principle of 'DME'.
6. Distinguish between primary and secondary control surfaces. Also show primary and secondary control surfaces on an aircraft with the help of neat sketch(s).

SECTION-C

7. Explain the working of following navigation systems :
 - (a) ILS (5)
 - (b) VORTAC (5)
8. What is the need for pressurization system in a transport aircraft? Explain briefly the function of various components of pressurization system of an aircraft with the help of a neat labeled sketch. (2,8)
9. What do you mean by an actuation system? List various methods of actuation of a flight control system. Describe fly-by-wire actuation system. (2,2,6)

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.