

# CBCS SCHEME

USN

--	--	--	--	--	--	--	--	--	--

18AE/AS55

## Fifth Semester B.E. Degree Examination, Jan./Feb. 2023 Aircraft Systems and Instrumentation

Time: 3 hrs.

Max. Marks: 100

*Note: Answer any FIVE full questions, choosing ONE full question from each module.*

### Module-1

- 1 a. Explain the different type of flight controls of an aircraft system. (10 Marks)  
b. Explain the concept and features of fly-by-wire system. (10 Marks)

OR

- 2 a. Explain the different types of conventional control systems used in an aircraft. (10 Marks)  
b. Explain the mechanical actuation with electrical signaling and mechanical screw jack actuator with neat diagrams. (10 Marks)

### Module-2

- 3 a. Explain the components of typical hydraulic system with a neat schematic. (10 Marks)  
b. Differentiate hydraulic and pneumatic system. (10 Marks)

OR

- 4 a. Explain the landing gear system with the components. (10 Marks)  
b. Explain the components of pneumatic system with a neat diagram. (10 Marks)

### Module-3

- 5 a. Explain the components of aircraft fuel system with a neat schematic. (10 Marks)  
b. Explain the characteristics of lubrication in the reciprocating engine. (10 Marks)

OR

- 6 a. Explain the different types of fuels used in the aircraft. Write the specific properties of fuels determined through testing. (10 Marks)  
b. Write a short note on lubrication system with classification. (10 Marks)

### Module-4

- 7 a. Explain the boot strap air cycle system with a neat sketch. (10 Marks)  
b. Write a short note on Deicing and Anti-icing systems. (10 Marks)

OR

- 8 a. Explain the vapour cycle system with a neat sketch. (10 Marks)  
b. Explain how fire is detected in an aircraft and measures to provide protection for the same. (10 Marks)

### Module-5

- 9 a. Define gyroscope. Explain the principle and operation and mention its properties. (10 Marks)  
b. Explain the different types of engine instruments with a neat sketch. (10 Marks)

OR

- 10 Explain the following instruments of an aircraft:  
a. Altimeter  
b. Air indicator  
c. Mach meter  
d. Vertical speed indicator (20 Marks)

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.  
2. Any revealing of identification, appeal to evaluator and /or equations written eg. 42+8 = 50, will be treated as malpractice.