

# CBCS SCHEME

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18AE/AS55

## Fifth Semester B.E. Degree Examination, Dec.2023/Jan.2024 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. With a neat sketch explain about conventional system. (10 Marks)  
b. Describe about the primary and secondary flight controls with relevant diagram. (10 Marks)

OR

- 2 a. Describe about the three axis autopilot system with a neat diagram. (10 Marks)  
b. Explain briefly about the power assisted and fully powered system. (10 Marks)

### Module-2

- 3 a. Elucidate the operation and working principle of different types of hydraulic system. (10 Marks)  
b. Discuss about the various components of hydraulic system with relevant diagram. (10 Marks)

OR

- 4 a. What is landing gear? Explain the different types of landing gear with relevant sketch. (10 Marks)  
b. Write short notes on hydraulic fluid. (05 Marks)  
c. With a neat sketch explain typical high pressure pneumatic system. (05 Marks)

### Module-3

- 5 a. What is the purpose of an aircraft fuel system? With neat sketch explain generalized fuel system of large transport aircraft. (10 Marks)  
b. Explain the lubricating system components and on gas turbines. (10 Marks)

OR

- 6 a. With a typical example. Explain fuel system for Jet engines. (10 Marks)  
b. What are some of the factors that influence the choice of the starting system? (10 Marks)

### Module-4

- 7 a. With a neat diagram, explain generalized basic air cycle system and vapour cycle system. (14 Marks)  
b. Write short notes on ANTI – ICING system. (06 Marks)

OR

- 8 Write short notes on :  
a. Thermocouple system  
b. Kidde system  
c. Fenwal system  
d. Lindberg system. (20 Marks)

### Module-5

- 9 With relevant diagram, explain the working principle of ASI, VSI, Altimeter and Machmeter. (10 Marks)

OR

- 10 a. Discuss and describe about the aircraft instrumentation grouping. (10 Marks)  
b. What is tachometer? With a neat sketch explain mechanical tachometer. (10 Marks)

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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.