



CBCS SCHEME

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21AE651

Sixth Semester B.E./B.Tech. Degree Examination, Dec.2024/Jan.2025 Introduction to Aerospace History

Time: 3 hrs.

Max. Marks: 100

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

Module-1

- 1 a. Write in brief note on Aerospace History before world war II. (10 Marks)
b. Explain the advents of jets and missiles in detail. (10 Marks)

OR

- 2 a. Describe the growth of the aerospace industry post second world war. (10 Marks)
b. Write a note on Internationalizations. (10 Marks)

Module-2

- 3 a. With help of the chart, explain the problems of propulsion in early days. (10 Marks)
b. With a neat sketch, explain the anatomy of an airplane. (10 Marks)

OR

- 4 a. What are the forces acts on an aircraft? Derive the equations of motions in general. (10 Marks)
b. State and derive the continuity equation and its significance. (10 Marks)

Module-3

- 5 a. State and explain the first law of thermodynamics in control volume approach. (10 Marks)
b. Write the equations for isentropic flow and explain its significance in bridging the thermodynamics and aerodynamics. (10 Marks)

OR

- 6 a. What is an airfoil? Explain its classification and its significance with CL vs α graph. (10 Marks)
b. With a neat sketch, explain the important components of wing geometry. (10 Marks)

Module-4

- 7 Derive the Range and Endurance equation for a propeller driven airplane. (20 Marks)

OR

- 8 a. Define rate of climb and explain in detail. (10 Marks)
b. From the equations of motion, derive the condition for straight, level unaccelerated flight. (10 Marks)

Module-5

- 9 a. Define stability and control. Explain the static stability with help of neat sketches. (10 Marks)
b. With a neat sketch explain the flight control systems development history. (10 Marks)

OR

- 10 a. Explain Brayton cycle with P-V and T-S diagram. (10 Marks)
b. List the classification of propulsion systems used in aircrafts. (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.