

CBCS Scheme

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15AE32

Third Semester B.E. Degree Examination, Dec.2017/Jan. 2018 Element of Aeronautics

Time: 3 hrs.

Max. Marks: 80

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

Module-1

- 1 a. Discuss the evaluation process in the development of modern aircraft. (08 Marks)
b. Explain with neat sketches the high lift devices. (08 Marks)

OR

- 2 a. Explain the different types of aircraft construction. (08 Marks)
b. Discuss in detail about the developments in the material for an aircrafts. (08 Marks)

Module-2

- 3 a. Write in detail about the airfoil nomenclature, with sketches. (08 Marks)
b. Explain about : i) Aerodynamic centre ii) Center of pressure. (08 Marks)

OR

- 4 a. Explain how does a pressure distribution over a wing section occur. (08 Marks)
b. Discuss : i) Aspect ratio ii) Mach number iii) Supersonic flight effects. (08 Marks)

Module-3

- 5 a. Describe the working of a Turboprop engine with a neat sketch. (08 Marks)
b. Compare merits and demerits of Turboprop, Turbojet and Turbofan engines. (08 Marks)

OR

- 6 a. Explain the working principle of Scramjet engine. How does scramjet differ from ramjet? (08 Marks)
b. Briefly explain the working of Turbojet engines. (08 Marks)

Module-4

- 7 a. Describe effects of flaps and slats on wings. (08 Marks)
b. Explain static and dynamic stability. (08 Marks)

OR

- 8 a. Briefly explain : i) Control tabs ii) Gliding iii) Landing iv) Turning. (08 Marks)
b. What are forces acting on an aircraft in flight? (08 Marks)

Module-5

- 9 a. What are the requirements of a typical pneumatic system of an aircraft? (08 Marks)
b. Describe a typical hydraulic system of a light passenger aircraft, with a neat sketch. (08 Marks)

OR

- 10 a. List various flight instruments and explain in detail about.
i) Altimeter ii) Air speed indicator. (08 Marks)
b. Discuss the application of navigation instrument employed in an aircraft. (08 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.