

# CBCS Scheme

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15AE32

## Third Semester B.E. Degree Examination, June/July 2018 Elements of Aeronautics

Time: 3 hrs.

Max. Marks: 80

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

### Module-1

- 1 a. Write a brief not on historical development in aeronautics. (08 Marks)  
b. Derive and describe the hydrostatic equation and also state the relation between geopotential and geometric altitudes. (08 Marks)

OR

- 2 a. Explain the types of fuselage and wing structures with suitable diagrams. (08 Marks)  
b. Discuss in detail about the developments in the material for an aircrafts. (08 Marks)

### Module-2

- 3 a. Discuss about the distribution of temperature in the standard atmosphere. (08 Marks)  
b. Write in detail about the airfoil nomenclature, with sketches. (08 Marks)

OR

- 4 a. Explain how does a pressure distribution over a wing section occur. (08 Marks)  
b. Write note on : i) Types of drag ii) Mach number iii) Supersonic height effects. (08 Marks)

### Module-3

- 5 a. Briefly explain the working of turbofan engines. (08 Marks)  
b. Bestow details about Bayton cycle and about the classification of aircraft power plants. (08 Marks)

OR

- 6 a. Describe the working of a Turboprop engine with a neat sketch. (08 Marks)  
b. Give explanation about Ramjet, Scramjet and Thrust argumentation. (08 Marks)

### Module-4

- 7 a. Describe in detail about the types of stability with suitable diagrams. (08 Marks)  
b. What are forces acting on an aircraft in flight? (08 Marks)

OR

- 8 a. Briefly explain : i) stalling ii) take off iii) landing iv) aircraft maneuvers. (08 Marks)  
b. Give details about effects of correct and incorrect angles of bank. (08 Marks)

### Module-5

- 9 a. Discuss about the types of flight control systems with neat diagrams. (08 Marks)  
b. What are the requirements of a typical pneumatic system of an aircraft? (08 Marks)

OR

- 10 a. With suitable diagrams explain the types of navigation systems. (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.