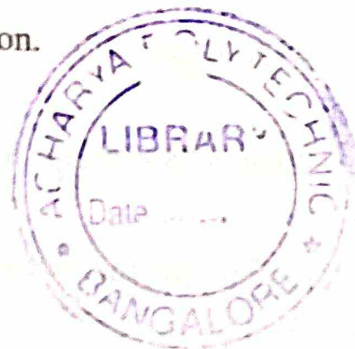


3640**Code : 20AN11T**Register
Number

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I Semester Diploma Examination, April/May-2021**ELEMENTS OF AERONAUTICS****Time : 3 Hours]****[Max. Marks : 100**

- Instructions:** (i) Answer **one** full questions from each section.
(ii) One full question carries **20** marks.
(iii) Neatness carries weightage.

**SECTION - 1**

- (a) Write a short note on history of aviation of India. 8

(Explanation - 8 m)

- (b) Explain the different types of speed based on mach no. with a simple sketch. 7

(Explanation - 5 m)

(Diagram - 2 m)

- (c) Mention the four basic forces acting on an aircraft using a simple sketch. 5

(Explanation - 4 m)

(Diagram - 1 m)

- (a) What is the importance of the development of propulsion system in the history of aviation ? 10

(Explanation - 10 m)

- (b) Explain the importance of Sweep wings. 5

(Explanation - 5 m)

- (c) What is an Aircraft System and its purpose ? 5

(Explanation - 3 m)

(Diagram - 2 m)

SECTION - 2

3. (a) Explain the developments in aircraft materials in history of aviation. (Explanation - 8 m)
- (b) Write the difference between Monoplane and Biplane. (5 difference - $5 \times 1 = 5$ m)
- (c) What is Civil aviation and Military aviation ? (Explanation - 7 m)
4. (a) Write a short note on classification of Aircraft. (Explanation - 5 m)
- (b) What is Monoplane and Biplane ? (Explanation - 5 m)
- (c) Explain the functions of various major components of aircraft. (Explanation - 10 m)

SECTION - 3

5. (a) Explain the function of the tail section of the aircraft. (Explanation - 7 m)
- (b) With a neat sketch name all the components of aircraft. (Diagram - 5 m)
(Label - 2 m)
- (c) Explain the relationship between temperature, density and pressure. (Explanation - 4 m)
(Diagram - 2 m)
6. (a) Explain the function of the wing. (Explanation - 3 m)
- (b) Write a short note on symmetrical airfoil and unsymmetrical airfoil, with a neat sketch. (Each of 4 m, $4 \times 2 = 8$ m)
- (c) Define the following : (Each of 3 m, $3 \times 3 = 9$ m)
- (i) Temperature
 - (ii) Pressure
 - (iii) Density

SECTION - 4

- (a) With a neat sketch, name all the terminology of the airfoil. 5
(Diagram - 4 m)
(label - 1 m)
- (b) What is an atmosphere? Name the different layers of atmosphere. 6
(Explanation - 4 m)
(Diagram - 2 m)
- (c) What is the effect of tail wind and head wind on the aircraft speed? 5
(Explanation - 5 m)
- (d) How the lift is generated on an aircraft? 4
(Explanation - 4 m)

- (a) Explain the classification of power plant. 10
(Classification - 5 m)
(Explanation - 5 m)
- (b) Explain the working of hydraulic system and pneumatic system. 10
(Each of 5 m, $2 \times 5 = 10$ m)

SECTION - 5

- (a) What do you understand by the term aeronautics? 5
(Explanation - 5 m)
- (b) Explain the different speed types for a low speed aircraft. 10
(Explanation - 10 m)
- (c) What is a standard atmosphere? 5
(Explanation - 5 m)
0. (a) What is an airport? 5
(Explanation - 5 m)
- (b) What is wing wrapping, who used it first? 5
(Explanation - 5 m)
- (c) What is the difference between gas turbine engine and piston engine? 5
(Explanation - 5 m)
- (d) What is an under carriage system? 5
(Explanation - 5 m)