Reg. No. : ☐☐☐☐☐☐☐☐☐☐☐☐

Question Paper Code: 1013366

B.E. / B.Tech. DEGREE EXAMINATIONS, NOV/ DEC 2024
Third Semester
Aeronautical Engineering
U20AE303 - ELEMENTS OF AERONAUTICAL ENGINEERING
(Regulation 2020)

Time: Three Hours   Maximum: 100 Marks

Answer ALL questions

PART – A   (10 x 2 = 20 Marks)

1.   Describe Empennage?

2.   Differentiate monoplane and biplane?

3.   Define the control surface?

4.   Write the relationship between the rolling moment and ailerons.

5.   Spell about Geostatic altitude.

6.   Recall and write, what is aerodynamic center?

7.   State the use of stringers and longerons.

8.   Describe the use of titanium in aircraft industry?

9.   What are cryogenic propellants?

10.   List out some Rockets used in India.

PART – B   (5 x 16 = 80 Marks)

11. (a) Describe the following.
         (i) Chanute's biplane gliders   (8)
         (ii) Otto Lilienthal gliders   (8)

                              (OR)

    (b) Explain in detail about the developments in aerodynamics.   (16)

12. (a) Explain in detail about the six degrees of the freedom by using control surfaces of
         the airplane with neat sketch.   (16)

                              (OR)

    (b) Sketch the airplane neatly and mark the at least 12 parts of the airplane.   (16)

13. (a) Explain in details about the basics structure of the atmosphere with neat sketch.
                                                                           (16)

                              (OR

    (b) Derive & Prove that the L/D is a measure of the aerodynamic efficiency.   (16)

14. (a) Explicate in details about the construction of fuselage.   (16)

                              (OR)

    (b) Elaborate the airfoils types and parts of the airfoils with neat sketch.   (16)

15. (a) Derive the thrust equation for turbo jet engine.   (16)

                              (OR)

    (b) Elucidate the working principal of turbojet engine with neat sketch.   (16)

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