

PARUL UNIVERSITY
FACULTY OF ENGINEERING & TECHNOLOGY
Diploma Engineering, Mid semester Examination

Semester: 5
Subject Code: 03613301
Subject Name: Aerodynamics

Date: 05/08/2022
Time: 1hr: 30min
Total Marks: 40

Instructions:

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. English version is considered to be Authentic.

- Q.1 Answer any six out of Ten. (2 Marks Each) (12)**
1. Define geometric mean chord and Aspect Ratio.
 2. Define sweepback wing and straight wing.
 3. Define circulation with its expression.
 4. State Kutta-Jowkowski theorem.
 5. Define critical angle of attack.
 6. Define Wind Tunnel.
 7. Give the full form of NACA, why it is formed?
 8. Define vortex flow and give its assumption.
 9. Define mean camber line and chord line.
 10. Which are the basic two sources for generation of Aerodynamic force.
- Q.2 A) Give drawback of Equal transit theory (03)**
- OR**
- A) Define tapered wing, twisted wing and wing area. (03)
B) Why sweepback wing is used in the aircraft? (03)
- OR**
- B) Write a short note on Downwash. (03)
C) Define drag and give its classification. (04)
- OR**
- C) Write a short note on Ground effect. (04)
D) Explain axis and moments of Airplane. (04)
- Q.3 A) Explain Subsonic wind tunnel with diagram. (03)**
B) Explain Airfoil nomenclature with diagram. (03)
C) Explain Subsonic wind tunnel with diagram. (04)
D) Explain coefficient of lift versus angle of attack curve. (04)