1. For an aerofoil the critical Mach number is 0.6. For free stream Mach number 0.6, what will be the Mach number at minimum pressure point on that aerofoil?
   Ans d
   a. 0.6
   b. Less than 0.6
   c. More than 0.6 but less than 1.0
   d. 1.0

2. For a wing the drag coefficient vs Mach number plot is shown in the following figure. Which point corresponds the drag divergence Mach number?
   Ans b
   [Diagram showing drag coefficient vs Mach number]
   a. A
   b. B
   c. C
   d. D

3. Super critical aerofoil is primarily used for
   Ans a
   a. Higher divergence Mach number
   b. More lift coefficient
   c. Higher stall angle
   d. Higher critical Mach number

4. Swept back wings are primarily used for
   Ans d
   a. Higher divergence Mach number
   b. More lift coefficient
   c. Higher stall angle
   d. Higher critical Mach number
5. For a cambered airfoil, $C_{m0\alpha_c,w}$ is Ans b
   a. always positive
   b. always negative
   c. zero
   d. can’t say

6. Cambered aerofoil is primarily used for Ans b
   a. Higher divergence Mach number
   b. Higher $C_{l\text{ max}}$
   c. Higher stall angle
   d. Higher critical Mach number

7. For an aircraft at a given altitude and velocity the induced drag is $D_i$. If weight of the aircraft is doubled keeping altitude and velocity same. What will be the new induced drag? Ans d
   a. 0.5$D_i$
   b. $D_i$
   c. 2$D_i$
   d. 4$D_i$

8. Generally, in swept back wings at tip the wash out is given Ans a
   a. To avoid tip stall
   b. To increase lift at tip
   c. To decrease drag
   d. To achieve higher $C_{l\text{ max}}$

9. For similar wing area how wing span $b$ is related to induced drag $D_i$ Ans d
   a. $D_i \propto b$
   b. $D_i \propto b^2$
   c. $D_i \propto 1/b$
   d. $D_i \propto 1/b^2$

10. For similar wing area, how thickness to chord ratio is related to critical Mach number Ans b
    a. $M_{cr}$ increases with $t/c$
    b. $M_{cr}$ decreases with $t/c$
    c. $M_{cr}$ is independent of $t/c$
    d. Can’t say