Unit 2 - Week 1

Week 1 : Assignment

1) For a symmetrical airfoil, $C_{mpa,w}$ is
   - always positive
   - always negative
   - zero
   - can't say

   Accepted Answers: zero

2) With increase in tail volume ratio the longitudinal stability will
   - increase
   - decrease
   - remain same
   - can't say

   Accepted Answers: increase

3) If the elevator size is increased, keeping the tail area same. The static longitudinal stability will
   - increase
   - decrease
   - remain same
   - can't say

   Accepted Answers: remain same

4) In an aircraft without changing any other dimensions the tail setting angle is changed from 2 degree to 4 degree. Due to this change the longitudinal stability of aircraft will
   - increase
   - decrease

   Accepted Answers: can't say
5) In an aircraft without changing any other dimensions the distance of aerodynamic center of tail from CG is increased. Due to this change the longitudinal stability of aircraft will

- increase
- decrease
- remain same
- can't say

Accepted Answers:  
remain same

6) A positive tail incidence angle setting, as compared to negative tail incidence angle setting, will result in

- more static stability
- less static stability
- same static stability
- can't say

Accepted Answers:  
increase

7) For static stability minimum condition that must be satisfied is

- $C_{ma} < 0$
- $C_{ma} < 0, C_{m0} > 0$
- $C_{ma} > 0, C_{m0} > 0$
- $C_{ma} < 0, C_{m0} < 0$

Accepted Answers:  
$C_{ma} < 0$

8) What determines the longitudinal stability of an airplane?

- Relationship of thrust to weight and drag
- Location of CG with respect to the neutral point
- Location of CG with respect to the manueuvering point
- None of the above

Accepted Answers:  
Location of CG with respect to the neutral point

9) To trim a flying wings at positive angle of attack which of the following arrangement is done

- CG is kept ahead of AC
- AC is kept ahead of CG

Accepted Answers:  
Location of CG with respect to the neutral point
To make a flying wing stable which of the following requirement must be met

- CG should be ahead of AC
- AC should be ahead of CG
- Airfoil should be cambered
- Airfoil should be reflexed

**Accepted Answers:**

*Reflex airfoil is used*

*CG should be ahead of AC*