X

Unit 12 - Week 10

Course outline

How to access the portal?

Preliminaries for the Course

Week 1

Week 2

Week 3

Week 4

Week 5

Week 6

Week 7

Week 8

Week 9

Week 10

Lecture 51 : Introduction to

Assignment 10

The due date for submitting this assignment has passed. Due on 2019-10-09, 23:59 IST.
As per our records you have not submitted this assignment.

The following questions may have more than one correct answers.
Read and analyse the question carefully before selecting the answer (s).
Marks will be awarded only if all the correct answers are selected.
No partial marks will be awarded.

1) Which of the following statements are TRUE? ***1 point***

- A statically unstable aircraft could be dynamically neutral
- A statically stable aircraft could be dynamically unstable
- A statically unstable aircraft could be dynamically stable
- A statically stable aircraft could be dynamically neutral

No, the answer is incorrect.
Score: 0

Accepted Answers:
A statically unstable aircraft could be dynamically neutral
A statically stable aircraft could be dynamically unstable
A statically stable aircraft could be dynamically neutral

2) The Neutral Point of an aircraft is: ***1 point***

- Located at the CG for a neutrally stable aircraft
- Located independently of the aircraft CG
- A theoretical point whose location is arbitrary
- Always located behind its Aerodynamic Centre

No, the answer is incorrect.
Score: 0

Static Stability: Center of Pressure, Center of Gravity and Neutral Point (unit?unit=59&lesson=70)
Lecture 52 : Aerodynamic Center and Effect of Center of Gravity (unit?unit=59&lesson=71)
Lecture 53 : Effect of Center of Gravity : A Practical Demonstration (unit?unit=59&lesson=72)
Lecture 54 : Introduction to V-n Diagram (unit?unit=59&lesson=73)
Lecture 55 : V-n Diagram as per FAR 23 Regulations (unit?unit=59&lesson=74)
Lecture 56 : Effect of Gusts on V-n Diagram (unit?unit=59&lesson=75)
Lecture 57 : Tutorial on Stability and Control (unit?unit=59&lesson=76)
Weekly Feedback (unit?unit=59&lesson=124)
Quiz : Assignment 10 (assessment?name=127)
Assignment 10 Solutions (unit?unit=59&lesson=133)
Week 11
Week 12

Accepted Answers:
Located at the CG for a neutrally stable aircraft
Located independently of the aircraft CG
A theoretical point whose location is arbitrary

3) An aircraft is longitudinally stable, and its horizontal tail carries a down load. Which of the following statements are TRUE? ***1 point***

- ☐ CG is located ahead of CP
- ☐ CP is located ahead of NP
- ☐ CP is located ahead of CG
- ☐ CG is located ahead of NP

No, the answer is incorrect.
Score: 0
Accepted Answers:
CG is located ahead of CP
CP is located ahead of NP
CG is located ahead of NP

4) Which of the following statements are TRUE about the Aerodynamic Centre ? ***1 point***

- ☐ It is located at quarter chord for all airfoils
- ☐ Its location is invariant with AoA
- ☐ Moment about it is invariant with AoA
- ☐ It is always located behind CG of an aircraft

No, the answer is incorrect.
Score: 0
Accepted Answers:
Its location is invariant with AoA
Moment about it is invariant with AoA

5) Air aircraft is longitudinally stable when: ***1 point***

- ☐ CG is located ahead of AC and NP
- ☐ CG is located at AC but ahead of NP
- ☐ CG is located behind AC but ahead of NP
- ☐ CG is located behind AC and NP

No, the answer is incorrect.
Score: 0
Accepted Answers:
CG is located ahead of AC and NP
CG is located at AC but ahead of NP
CG is located behind AC but ahead of NP

6) Which factors govern the upper limit of n_z in a V-n diagram ? ***1 point***

- ☐ Safety and Comfort of passengers
- ☐ Structural Strength of the aircraft
- ☐ Climb gradient of the aircraft
- ☐ Design Diving Speed of the aircraft

No, the answer is incorrect.
Score: 0
Accepted Answers:
Safety and Comfort of passengers
Structural Strength of the aircraft

7) Which of the following statements are TRUE for Corner Speed of an aircraft ? ***1 point***

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- ☐ It corresponds to the tightest turn
- ☐ It corresponds to the fastest turn
- ☐ It corresponds to highest C_L and highest n_z
- ☐ It should be as low as possible

No, the answer is incorrect.
Score: 0

Accepted Answers:
It corresponds to the tightest turn
It corresponds to the fastest turn
It corresponds to highest C_L and highest n_z
It should be as low as possible

8) Why are lateral cuts provided in the top and bottom right corner of a V-n diagram? ***1 point***

- ☐ Due to Powerplant limitations
- ☐ Due to Structural limitations
- ☐ Since flight in these regions is not possible
- ☐ Due to Aerodynamic limitations

No, the answer is incorrect.
Score: 0

Accepted Answers:
Due to Powerplant limitations
Since flight in these regions is not possible

9) The additional load factor due to a sudden vertical gust Δn_z is directly proportional to : ***1 point***

- ☐ Wing Loading (W/S)
- ☐ Gust Velocity (V_G)
- ☐ Equivalent Air Speed (V_{eq})
- ☐ Lift Curve Slope (a_o)

No, the answer is incorrect.
Score: 0

Accepted Answers:
Gust Velocity (V_G)
Equivalent Air Speed (V_{eq})
Lift Curve Slope (a_o)

10) Most vertical gusts are never sharp in nature, but gradual. This fact is taken care in FAR 23 regulations by : ***1 point***

- ☐ A lower value of max. V_g
- ☐ Sine distribution of V_g
- ☐ Gust Alleviation Factor ‘k’
- ☐ Cosine distribution for V_g

No, the answer is incorrect.
Score: 0

Accepted Answers:
Gust Alleviation Factor ‘k’
Cosine distribution for V_g