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Unit 7 - Week 6

Assignment 06

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.

1) Data for question 1 to 4: ***1 point***

For an electric powered fixed wing UAV with standard parameters and mission profile is given below: the take-off weight = 100kg, Range = 200km. Cruise speed= 20m/s. L/D=10. (Hint: Consider UAV is flying at cruise speed for entire range of flight.)

- 1.962
- 3.689
- 6.520
- 4.568

No, the answer is incorrect.
Score: 0

Accepted Answers:
1.962

2) Endurance of the UAV in hr will be? ***1 point***

- 2.77
- 8.32
- 4.96
- 0.23

No, the answer is incorrect.
Score: 0

Accepted Answers:
2.77

3) Total Energy in kW-hr, that needs to be supplied by the battery during the entire mission is? ***1 point***

- 5.450
- 4.592
- 2.368
- 1.002

No, the answer is incorrect.
Score: 0
Accepted Answers:
5.450

4) Battery used in the UAV has a specific energy of 150 W-hr/kg. What will be the total battery weight in kg, required to fulfil above mentioned mission requirement? ***1 point***

- 36.33
- 53.21
- 16.59
- 8.103

No, the answer is incorrect.
Score: 0
Accepted Answers:
36.33

5) Data for question 5 to 8 ***1 point***

The UAV has:
wing area of $S = 11.5m^2$ Aspect ratio of wing AR_w = 7.78, taper ratio of wing λ_w = 0.65

5. Wing span is (in meters)?

- 9.46
- 2.89
- 2.36
- 2.75

No, the answer is incorrect.
Score: 0
Accepted Answers:
9.46

6) Root chord is (in meters)? ***1 point***

- 1.47
- 2.89
- 2.36
- 2.75

No, the answer is incorrect.
Score: 0
Accepted Answers:
1.47

7) Mean aerodynamic chord is (in meters)? ***1 point***

- 1.23
- 2.89
- 2.36

- 2.75

No, the answer is incorrect.
Score: 0

Accepted Answers:
1.23

8) Tip chord is (in meters)? ***1 point***

- 0.96
- 0.89
- 0.36
- 1.75

No, the answer is incorrect.
Score: 0

Accepted Answers:
0.96

9) The necessary condition of Stable UAV is? ***1 point***

- $C_{m_\alpha} \geqslant 0$
- $C_{m_\alpha} \leqslant 0$
- $C_{m_\alpha} = 0$
- $C_{m_\alpha} < 0$

No, the answer is incorrect.
Score: 0

Accepted Answers:
$C_{m_\alpha} < 0$

10) Which condition holds to trim the Stable UAV at positive angle of attack? ***1 point***

- $C_{m_\alpha} \geqslant 0, C_{m_0} = 0$
- $C_{m_\alpha} \leqslant 0, C_{m_0} > 0$
- $C_{m_\alpha} < 0, C_{m_0} > 0$
- $C_{m_\alpha} < 0, C_{m_0} = 0$

No, the answer is incorrect.
Score: 0

Accepted Answers:
$C_{m_\alpha} < 0, C_{m_0} > 0$