

X


<https://swayam.gov.in>

[https://swayam.gov.in/nc\\_details/NPTEL](https://swayam.gov.in/nc_details/NPTEL)

reviewer4@nptel.iitm.ac.in ▾

**NPTEL** (<https://swayam.gov.in/explorer?ncCode=NPTEL>) » **Design of fixed wing Unmanned Aerial Vehicles**  
(course)

Announcements (announcements)    **About the Course** ([https://swayam.gov.in/nd1\\_noc19\\_ae06/preview](https://swayam.gov.in/nd1_noc19_ae06/preview))

Ask a Question (forum)    Progress (student/home)    Mentor (student/mentor)

## Unit 7 - Week 6

### Course outline

#### How to access the portal

#### Week 1

#### Week 2

#### Week 3

#### Week 4

#### Week 5

#### Week 6

- Lecture 16 - Iterative weight estimation and Wing sizing (unit=37&lesson=38)
- Lecture 17 - Wing Planform selection and sizing and Flight test of Cropped delta wing UAVs (unit=37&lesson=39)

## 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

● Lecture 18 -  
Effect of  
variation of CG  
location and  
Static Stability  
(unit?  
unit=37&lesson=40)

○ Quiz :  
**Assignment 06**  
(assessment?  
name=73)

○ Feedback For  
Week 6 (unit?  
unit=37&lesson=75)

○ Assignment 06  
Solution (unit?  
unit=37&lesson=79)

**Week 7**

**Week 8**

**Text  
Transcription**

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  $\lambda_w = 0.65$

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

$C_{m_\alpha} \geq 0$

$C_{m_\alpha} \leq 0$

$C_{m_\alpha} = 0$

$C_{m_\alpha} < 0$

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

$C_{m_\alpha} \geq 0, C_{m_0} = 0$

$C_{m_\alpha} \leq 0, C_{m_0} > 0$

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

$C_{m_\alpha} < 0, C_{m_0} = 0$

No, the answer is incorrect.

Score: 0

Accepted Answers:

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

