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NPTEL (https://swayam.gov.in/explorer?ncCode=NPTEL) » **Introduction to Aerospace Engineering/Flight**

(course)

Announcements (announcements)	**About the Course (https://swayam.gov.in/nd1_noc19_ae05/preview)**

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

Unit 11 - Week 9

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

● Lecture 45 : Gliding Flight (unit? unit=58&lesson=64)

Assignment 9

The due date for submitting this assignment has passed.   **Due on 2019-10-02, 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) An aircraft in a steady climb suddenly experiences a 10% drop in thrust.   *1 point*
After a new equilibrium is reached at the same speed, the new rate of climb is

○ Lower by exactly 10%
○ Lower by more than 10%
○ Lower by less than 10%
○ An unpredictable quantity

No, the answer is incorrect.
Score: 0
Accepted Answers:
Lower by more than 10%

2) For maximum range of a glider, which of the following conditions are true   *1 point*

○ Lift to Drag ratio is maximum
○ Rate of descent is minimum
○ Descent angle is maximum
○ Lift to Weight ratio is maximum

No, the answer is incorrect.
Score: 0

Accepted Answers:
Lift to Drag ratio is maximum

3) An aircraft stalls at a speed of 40 m/s in straight level flight. The lowest   *1 point*
speed at which this aircraft can execute a level turn at a bank angle of 60 degrees
is:

○ 28.3 m/s

○ 40.0 m/s

○ 56.6 m/s

○ 80.8 m/s

No, the answer is incorrect.
Score: 0

Accepted Answers:
56.6 m/s

4) Which of the following design parameters influence the maximum rate-of-   *1 point*
climb for a jet-propelled airplane?
P - Wing Loading
Q - Maximum Thrust-to-Weight Ratio
R - Zero-lift Drag Coefficient
S - Maximum Lift-to-Drag Ratio

○ P, Q, R and S

○ P and Q alone

○ P, Q, and S alone

○ Q, R, and S alone

No, the answer is incorrect.
Score: 0

Accepted Answers:
P, Q, R and S

5) A piston-prop airplane having propeller efficiency, η_p = 0.8, and weighing   *1 point*
73108 N could achieve maximum climb rate of 15 m/s at flight speed of 50 m/s.
The excess Brake Power (BP) at the above flight condition will be

○ 1700 kW

○ 2100 kW

○ 1371 kW

○ 6125 kW

No, the answer is incorrect.
Score: 0

Accepted Answers:
1371 kW

6) An aircraft is performing a coordinated turn manoeuvre at a bank angle of   *1 point*
300 and forward speed of 100 m/s. Assume g = 9.81 m/s². The turn radius
respectively of the aircraft is

○ 19.6 km

○ 17.6 km

○ 0.18 km

○ 1.77 km

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

7) An aircraft's turn is Faster and Tighter when: **1 point**

   ◯ Speed 'V' is low and Load factor 'n' is high
   ◯ Speed 'V' is low and Load factor 'n' is low
   ◯ Speed 'V' is high and Load factor 'n' is high
   ◯ Speed 'V' is high but Load factor 'n' is low

No, the answer is incorrect.
Score: 0
Accepted Answers:
Speed 'V' is low and Load factor 'n' is high

8) Two identical single-engined aircraft A & B are flying level side by side at   **1 point**
the same altitude. A is 300 kg lighter than B. Suddenly, both A & B suffer engine
failure, and the pilots immediately trim them to their best speeds to achieve
maximum lift-to-drag ratio (L/D). Which of the following statements is correct?

   ◯ A will cover more horizontal distance
   ◯ B will cover more horizontal distance
   ◯ Both will cover same horizontal distance, but A will land first
   ◯ Both will cover same horizontal distance, but B will land first

No, the answer is incorrect.
Score: 0
Accepted Answers:
Both will cover same horizontal distance, but B will land first

9) For a piston-prop engine aircraft, the best angle of climb speed Vx in a   **1 point**
steady climb occurs when:

   ◯ CL / CD is maximum
   ◯ Power Required is minimum
   ◯ Rate of Climb is maximum
   ◯ Excess Power is maximum

No, the answer is incorrect.
Score: 0
Accepted Answers:
Power Required is minimum

10) A transport aircraft is operating at its Service ceiling, hence its Rate of   **1 point**
Climb is

   ◯ 0.00 m/s
   ◯ 0.51 m/s
   ◯ 30.5 m/s
   ◯ 100 m/s

No, the answer is incorrect.
Score: 0
Accepted Answers:
0.51 m/s