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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 13 - Week 11

Course outline

How to access the portal?

Preliminaries for the Course

Week 1

Week 2

Week 3

- Lecture 9 :
Essentials of Incompressible Flow : Part I (unit? unit=20&lesson=22)

- Lecture 10 :
Essentials of Incompressible Flow : Part II (unit? unit=20&lesson=23)

- Lecture 11 :
Bernoulli's Equation and Coanda Effect

Assignment 11

The due date for submitting this assignment has passed. Due on 2019-10-16, 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) The equivalent Jet SFC (c_t) of a piston engine aircraft is directly proportional to: **1 point**

- the forward speed (V_∞)
- the propeller efficiency (η_p)
- the power SFC (c)
- the propeller rpm

No, the answer is incorrect.

Score: 0

Accepted Answers:
the forward speed (V_∞)
the power SFC (c)

2) To maximize the Range of a Propeller engine powered aircraft, one should: **1 point**

- Fly at maximum L/D
- Minimize SFC (c)
- Fly at a speed at which $C_{D0} = C_{Di}$
- Minimize Empty Weight

No, the answer is incorrect.

Score: 0

Accepted Answers:

(unit?
unit=20&lesson=24)

- Lecture 12 :
Mach Number
(unit?
unit=20&lesson=25)

- Lecture 13 :
Tutorial 2:
Incompressible
Flow and Flow
Visualization
(unit?
unit=20&lesson=26)

- Quiz :
Assignment 3
(assessment?
name=95)

- Assignment-3
Solutions (unit?
unit=20&lesson=107)

- Weekly
Feedback (unit?
unit=20&lesson=116)

Week 4

Week 5

Week 6

Week 7

Week 8

Week 9

Week 10

Week 11

- Lecture 58 :
Range (unit?
unit=77&lesson=79)

- Lecture 59 :
Specific Fuel
Consumption
and Generalized
Range Equation
(unit?
unit=77&lesson=80)

- Lecture 60 :
Endurance
(unit?
unit=77&lesson=81)

Fly at maximum L/D
Minimize SFC (c)
Fly at a speed at which $C_{D0} = C_{Di}$
Minimize Empty Weight

3) To maximize the Endurance of a Propeller engine powered aircraft, one should:

1 point

- Fly at maximum L/D
- Minimize TSFC (c_f)
- Fly at a speed at which $C_{D0} = C_{Di}$
- Minimize Empty Weight

No, the answer is incorrect.
Score: 0

Accepted Answers:
Fly at maximum L/D
Minimize TSFC (c_f)
Fly at a speed at which $C_{D0} = C_{Di}$
Minimize Empty Weight

4) The presence of a steady Headwind during level flight results in

1 point

- Reduction in Ground Speed (V_G)
- Increase in Ground Speed (V_G)
- Reduced Range of a propeller driven aircraft
- Reduced Range of a jet engine aircraft

No, the answer is incorrect.
Score: 0

Accepted Answers:
Reduction in Ground Speed (V_G)
Reduced Range of a propeller driven aircraft
Reduced Range of a jet engine aircraft

5) Range in Cruise-Climb of a jet engine aircraft is maximized when flown at a speed at which: **1 point**

- C_L / C_D is maximum
- $C_L^{0.5} / C_D$ is maximum
- $C_L^{1.5} / C_D$ is maximum
- $C_{D0} = 3kC_L^2$

No, the answer is incorrect.
Score: 0

Accepted Answers:
 C_L / C_D is maximum

6) Take off ground run can be reduced by:

1 point

- operating from a lower altitude
- decreasing lift coefficient
- decreasing wing loading
- increasing wing loading

No, the answer is incorrect.
Score: 0

Accepted Answers:
operating from a lower altitude
decreasing wing loading

7) Which of the following statement(s) is/are TRUE ?

1 point

● Lecture 61 :
Take-off
Performance of
Flight : Part I
(unit?
unit=77&lesson=82)

● Lecture 62 :
Take-off
Performance of
Flight : Part II
(unit?
unit=77&lesson=83)

● Lecture 63 :
Landing
Performance of
Flight (unit?
unit=77&lesson=84)

● Lecture 64 :
Tutorial on
Range Payload
Diagram (unit?
unit=77&lesson=85)

● Lecture 65 :
Tutorial on
Range and
Endurance
(unit?
unit=77&lesson=86)

● Weekly
Feedback (unit?
unit=77&lesson=125)

○ Quiz :
Assignment 11
(assessment?
name=128)

○ Assignment 11
Solutions (unit?
unit=77&lesson=134)

Week 12

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Text Transcripts

- $V_1 < V_R < V_{LO}$
 $V_{MU} > V_R > V_1$
 $V_1 > V_{MC} > V_s$
 $V_{MC} < V_R < V_{MU}$

No, the answer is incorrect.
Score: 0

Accepted Answers:

$$V_1 < V_R < V_{LO}$$

$$V_{MU} > V_R > V_1$$

$$V_1 > V_{MC} > V_s$$

$$V_{MC} < V_R < V_{MU}$$

8) Landing distance can be reduced by:

1 point

- operating from a lower altitude
 decreasing lift coefficient
 decreasing wing loading
 increasing wing loading

No, the answer is incorrect.
Score: 0

Accepted Answers:

operating from a lower altitude

decreasing wing loading

9) Which of the following statement(s) is/are TRUE ? (Note: δ_{Flap} = Flap Deflection)

1 point

- $\delta_{Flap} @ \text{Landing} \leq \delta_{Flap} @ \text{Takeoff}$
 $\delta_{Flap} @ \text{Landing} \geq \delta_{Flap} @ \text{Takeoff}$
 $C_L @ \text{Landing} \geq C_L @ \text{Takeoff}$
 $C_L @ \text{Landing} \leq C_L @ \text{Takeoff}$

No, the answer is incorrect.
Score: 0

Accepted Answers:

$$\delta_{Flap} @ \text{Landing} \geq \delta_{Flap} @ \text{Takeoff}$$

$$C_L @ \text{Landing} \geq C_L @ \text{Takeoff}$$

10) The proposed GABRIEL Magnetic Levitation system for Take-off and Landing is expected to result in lower value(s) of: **1 point**

- Aircraft gross weight
 Fuel consumption
 Airport noise affected area
 Emissions in the airport region

No, the answer is incorrect.
Score: 0

Accepted Answers:

Aircraft gross weight

Fuel consumption

Airport noise affected area

Emissions in the airport region

