

Unit 7 - Week 5

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Assignment 5

The due date for submitting this assignment has passed.
As per our records you have not submitted this assignment.

Due on 2020-10-21, 23:59 IST.

- 1) Why do Pusher propellers have low base drag even with high aft fuselage angles? 1 point
- Since Pusher propellers have lower diameters
 Since Pusher propellers results in washing away of separated flow by the engines
 Since Pusher propellers rotate at lower RPM
 Since Pusher propellers do not have swirling flow

No, the answer is incorrect.
Score: 0

Accepted Answers:
Since Pusher propellers results in washing away of separated flow by the engines

- 2) Estimate the C_{L_α} (with strake) for a low angle of attack flight, if the C_{L_α} (without strake) = 0.1, Wing Reference Area = 100 m² and Strake Area = 10 m². 0 points
- 0.110
 0.011
 0.010
 0.100

No, the answer is incorrect.
Score: 0

Accepted Answers:
0.110

- 3) Which of the following statements is/are FALSE about the effect of increment in wing aspect ratio? 1 point
- It increases angle of attack at stall.
 It reduces subsonic (L/D)max.
 It increases the wing weight.
 It improves wing rigidity

No, the answer is incorrect.
Score: 0

Accepted Answers:
*It increases angle of attack at stall.
It reduces subsonic (L/D)max.
It improves wing rigidity*

- 4) What is the main drawback of Twin Vertical Tail layout? 1 point
- Reduced manoeuvrability
 Larger area than conventional single Vertical tail
 Difficult to maintain
 High structural weight

No, the answer is incorrect.
Score: 0

Accepted Answers:
High structural weight

- 5) An aircraft is fitted with a trapezoidal wing having reference area $S = 20 \text{ m}^2$, aspect ratio $AR = 8$, and taper ratio $\lambda = 0.6$. Determine wing tip chord, and root chord. 1 point
- 19.36 m & 1.161 m
 1.936 m & 11.61 m
 1.936 m & 1.161 m
 19.36 % 11.61 m

No, the answer is incorrect.
Score: 0

Accepted Answers:
1.936 m & 1.161 m

- 6) Which of the following power plant types is/are preferred for a transonic passenger transport airplane to ensure low specific fuel consumption (SFC)? 1 point
- Turbojet with Afterburner
 Low bypass Turbojet
 Turbofan
 Turboprop

No, the answer is incorrect.
Score: 0

Accepted Answers:
Turbofan

- 7) Match the following based on the Aircraft types and the best suitable wing layout. 1 point
- Aircraft Types:
a. Aerobatic aircraft
b. Heavy weight transport aircraft
c. Amphibian aircraft

Wing Layout:
1. Low Wing
2. Mid Wing
3. High Wing

- a - 2, b - 1, c - 3
 a - 1, b - 2, c - 3
 a - 3, b - 2, c - 1
 a - 1, b - 3, c - 2

No, the answer is incorrect.
Score: 0

Accepted Answers:
a - 2, b - 1, c - 3

- 8) Which of the following is/are the advantages of the Tractor Engine configuration? 1 point
- Higher propeller efficiency and large propeller clearance
 Good air cooling for the engine
 Improved pilot visibility
 Reduces fuselage form drag

No, the answer is incorrect.
Score: 0

Accepted Answers:
*Higher propeller efficiency and large propeller clearance
Good air cooling for the engine*

- 9) Which of the following aircraft(s) has/have V-Tail configuration? 1 point
- Cirrus Vision SF50
 Cessna 525B CJ3
 Northrop Grumman RQ-4 Global Hawk
 Fouga C M 170 Magister
 Eclipse 400

No, the answer is incorrect.
Score: 0

Accepted Answers:
*Cirrus Vision SF50
Northrop Grumman RQ-4 Global Hawk
Fouga C M 170 Magister
Eclipse 400*

- 10) Which of the following factor(s) can drive the layout of an aircraft during conceptual design? 1 point
- Functional Requirements
 Safety and Reliability
 Types of Propulsion system
 Economy and Production capability

No, the answer is incorrect.
Score: 0

Accepted Answers:
*Functional Requirements
Safety and Reliability
Types of Propulsion system
Economy and Production capability*