

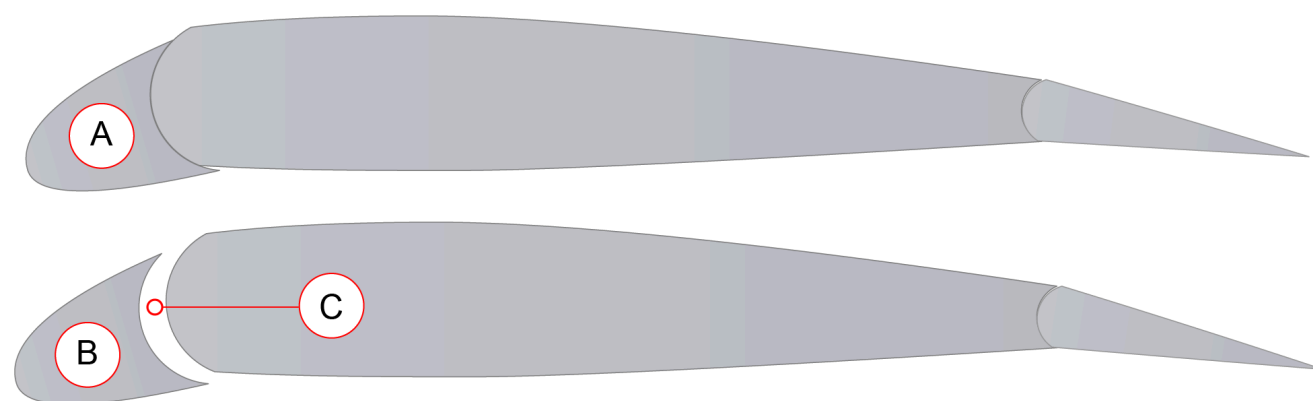
Status Finished**Started** Thursday, 11 September 2025, 8:59 AM**Completed** Thursday, 11 September 2025, 11:05 AM**Duration** 2 hours 5 mins**Marks** 38.00/45.00**Grade** 84.44 out of 100.00**Feedback**

You have successfully passed this test.

Question 1

Correct

Mark 1.00 out of 1.00



Study the diagram and mark all correct answer(s): Mark all correct answers.

- ☐ A is an example of a Krueger leading edge device.
- ☒ B is an example of a slat. ✓
- ☐ B is an example of a slot.
- ☒ A is an example of a variable camber leading edge device. ✓
- ☒ C is an example of a slot. ✓

The correct answers are: A is an example of a variable camber leading edge device., C is an example of a slot., B is an example of a slat.

Question 2

Correct

Mark 1.00 out of 1.00

Which of the following statements about spinning are correct? Mark all correct answers.

- ☒ In a fully developed spin the nose attitude is usually low. ✓
- ☐ Autorotation only occurs during a developed spin.
- ☒ In an incipient spin the nose attitude is likely to be high ✓
- ☒ In an incipient spin the aircraft is autorotating. ✓
- ☒ The aircraft cannot spin unless it is stalled. ✓

The correct answers are: The aircraft cannot spin unless it is stalled., In an incipient spin the aircraft is autorotating., In an incipient spin the nose attitude is likely to be high, In a fully developed spin the nose attitude is usually low.

Question 3

Correct

Mark 1.00 out of 1.00

An _____ tab moves in the same sense as the control surface, thus opposing its movement. Provides greater force feedback to the pilot at higher IAS.

- ☐ servo
- ☐ balance
- ☐ spring
- ☒ anti-balance ✓ Great job!

The correct answer is: anti-balance

Question 4

Correct

Mark 1.00 out of 1.00

Which 2 of the following statements are correct?

- ☐ An aircraft can only stall with a high nose attitude.
- ☒ The only reliable method of recovering from a fully-developed stall is to unstall the wings. ✓
- ☒ Heavy aerodynamic and/or artificial buffet, and a high rate of descent are symptoms of straight and swept wing stall. ✓
- ☐ An aircraft can only stall at low speed.
- ☐ If the nose is already low, pushing the stick forward will not unstall the wings.

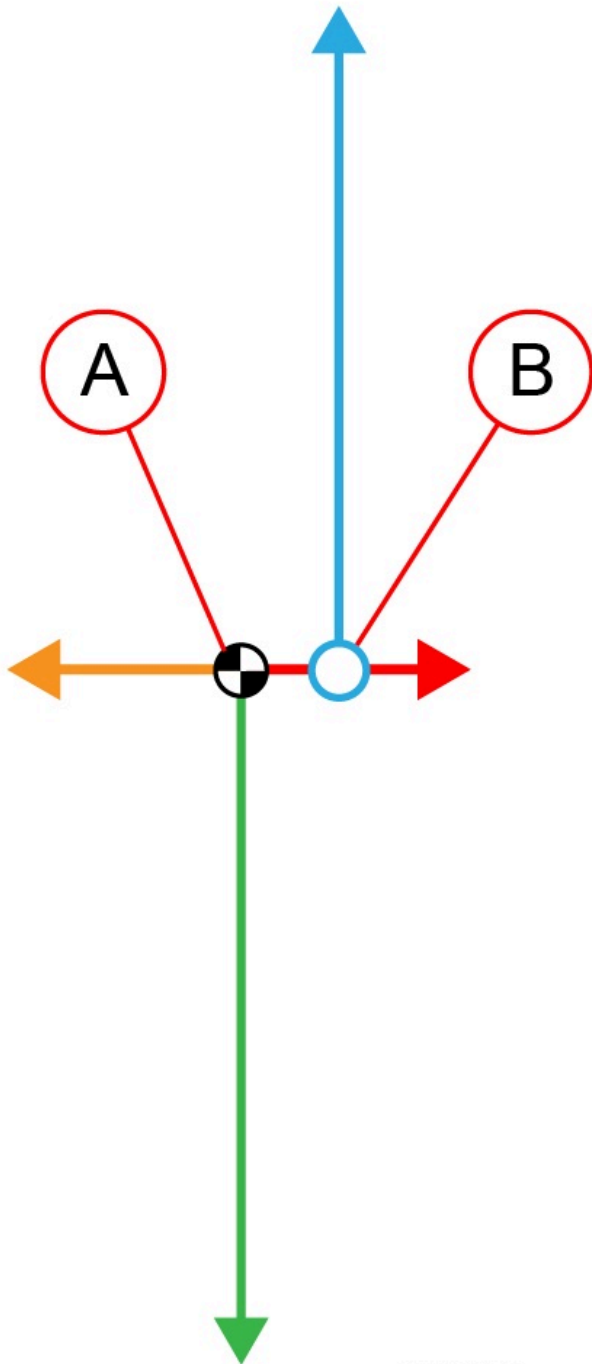
The correct answers are: The only reliable method of recovering from a fully-developed stall is to unstall the wings., Heavy aerodynamic and/or artificial buffet, and a high rate of descent are symptoms of straight and swept wing stall.

Question 5

Correct

Mark 1.00 out of 1.00

In this diagram the centre of pressure is marked with the



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letter _____ and the centre of gravity is marked with the letter _____.

- ☐ B; B.
- ☒ B; A. Great job!
- ☐ A; A.
- ☐ A; B.


The correct answer is: B; A.

Question 6

Correct

Mark 1.00 out of 1.00

What is the basic stalling speed (V_{s1g}) of your Diamond DA-42, given the following data: Wing area 16 m². Mass is 2000 kg. ρ is 0.7 kg/m³. CL_{MAX} clean is 1.3.

- ☐ 67 kt
- ☐ 78 kt
- ☐ 50 kt
- ☒ 52 kt  Great job!

$$V_{s1g} = \sqrt{(2 M g / \rho S CL_{MAX})}$$

$$V_{s1g} = \sqrt{(2 \times 2000 \times 10 / 0.7 \times 16 \times 1.3)}$$

$$V_{s1g} = \sqrt{40\,000 / 14.56}$$

$$V_{s1g} = \sqrt{2747}$$

$$= 52 \text{ kt}$$


The correct answer is: 52 kt

Question 7

Correct

Mark 1.00 out of 1.00

An aerodynamic balancing device, which makes it possible for a large surface to be deflected by a relatively small control force, is called:

- ☐ a balance tab.
- ☐ an anti-balance tab.
- ☒ a servo tab.  Great job!
- ☐ a horn balance.


The correct answer is: a servo tab.

Question 8

Correct

Mark 1.00 out of 1.00

Which of the following statements about buffet or stall is correct?

- ☐ Insufficient take-off flap increases the risk of encountering buffet but decreases the risk of a stall.
- ☒ With underslung engines, the use of the take-off/go-around power setting (TOGA) produces powerful noseup pitching moments, increasing the risk of a stall.  Great job!
- ☐ High bank angles decrease the risk of a stall.
- ☐ A higher rate of rotation on take-off or go-around decreases the risk of buffet or stall.

The correct answer is: With underslung engines, the use of the take-off/go-around power setting (TOGA) produces powerful noseup pitching moments, increasing the risk of a stall.


Question 9

Correct

Mark 1.00 out of 1.00

EASA CS 25 for CAT aircraft require that:

The reference landing speed VREF must not be less than _____ x VS0.

- ☐ 1.13
- ☒ 1.23  Great job!
- ☐ 1.33
- ☐ 1.1


The correct answer is: 1.23

Question 10

Correct

Mark 1.00 out of 1.00

If TAS doubles, the radius of turn _____ and the rate of turn _____.

- ☐ doubles; doubles.
- ☒ quadruples; halves.  Great job!
- ☐ halves; quadruples.
- ☐ quadruples; doubles.




The correct answer is: quadruples; halves.

Question 11

Incorrect

Mark 0.00 out of 1.00

Which 3 of the following statements are correct:

- ☐ All aircraft have a pronounced nose-down pitching moment at the stall.
- ☐ When the aircraft stalls, no lift is produced.
- ☐ A swept-wing aircraft always pitches up at the stall.
- ☒ When it stalls, a swept wing aircraft often generates very little, to no aerodynamic buffet. 
- ☐ On a swept wing, the CP continues to move forward as alpha increases beyond the critical angle.
- ☒ CL is maximum at the stalling angle 
- ☒ Lift and drag reduce rapidly above the critical angle. 

The correct answers are: When it stalls, a swept wing aircraft often generates very little, to no aerodynamic buffet., On a swept wing, the CP continues to move forward as alpha increases beyond the critical angle., CL is maximum at the stalling angle

Question 12

Correct

Mark 1.00 out of 1.00

2 aircraft of different masses are otherwise identical. One has a mass of 2200 kg, the other has a mass of 3000 kg. Both are attempting to glide for maximum range. Mark 2 correct answers.

- ☐ In still-air conditions, both aircraft have the same gliding range, the same glide angle and the same gliding time.
- ☒ The heavier aircraft will have the longest gliding range in a headwind. ✓
- ☐ The heavier aircraft will have the longest gliding range in still-air conditions.
- ☐ Both aircraft have the same gliding range in still-air conditions but the heavier aircraft will glide at a steeper angle.
- ☒ In still-air conditions, both aircraft have the same gliding range and the same glide angle. ✓
- ☐ The lighter aircraft will have the longest gliding range in still-air conditions.

The correct answers are: In still-air conditions, both aircraft have the same gliding range and the same glide angle., The heavier aircraft will have the longest gliding range in a headwind.

Question 13

Correct

Mark 1.00 out of 1.00

Adjustable (moveable) trim tabs can be driven _____.

- ☐ manually.
- ☒ electrically or manually. ✓ Great job!
- ☐ electrically.

The correct answer is: electrically or manually.

Question 14

Correct

Mark 1.00 out of 1.00

Which of the following statements is/are correct? Mark all correct answers.

- ☒ Power-assisted and fully powered pitch controls trim the aircraft by deflecting the elevator. They don't use trim tabs. ✓
- ☒ Fully powered controls provide no feel to the pilot. Artificial feel is required to give the pilot a sense of the control forces at different IAS. ✓
- ☒ Fully-powered controls provide all the power required to move the control surfaces. ✓
- ☒ Artificial feel can be provided by simple mechanical springs. ✓

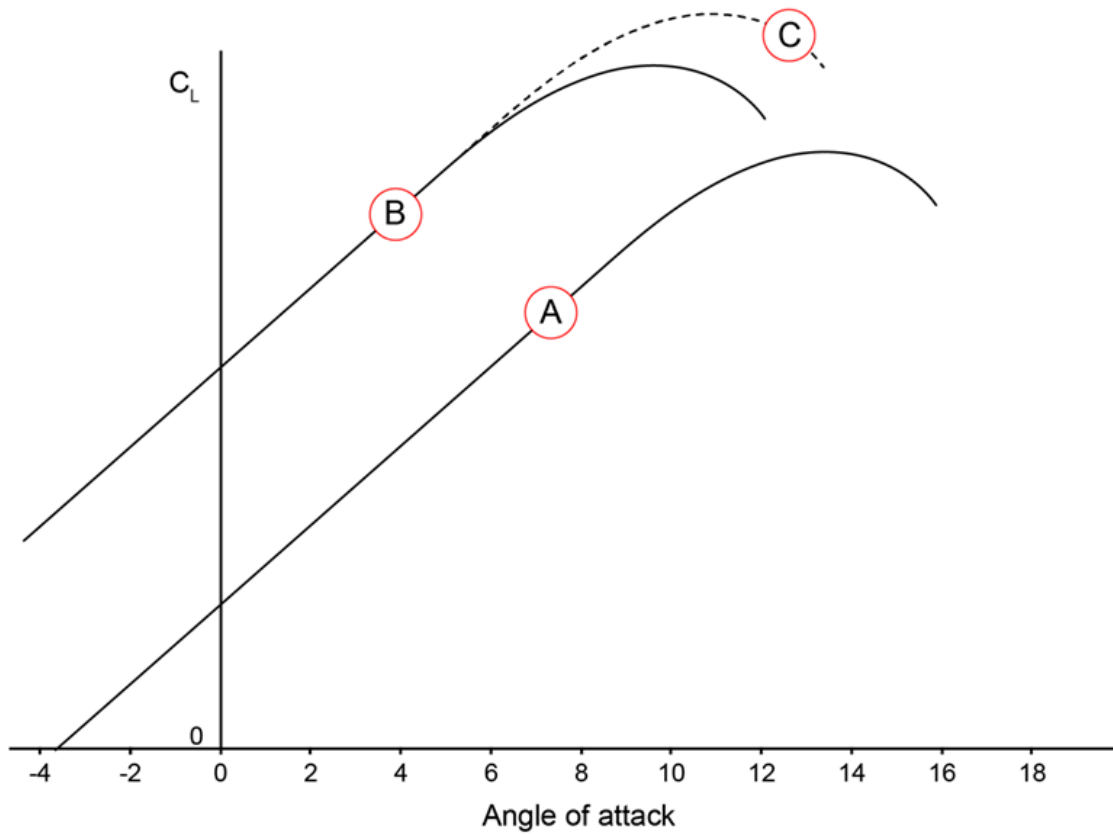
The correct answers are: Fully powered controls provide no feel to the pilot. Artificial feel is required to give the pilot a sense of the control forces at different IAS., Power-assisted and fully powered pitch controls trim the aircraft by deflecting the elevator. They don't use trim tabs., Fully-powered controls provide all the power required to move the control surfaces., Artificial feel can be provided by simple mechanical springs.

Question 15

Incorrect

Mark 0.00 out of 1.00

Given that A



shows the curve for a clean aerofoil: Mark all correct answers.

- ☐ B shows that CL_{Max} and α_{CRIT} have increased.
- ☒ C shows that using this device reduces the approach speed for a given mass. ✓
- ☒ B shows the curve for a plain flap. ✓
- ☐ C shows the curve for a split flap.
- ☐ B shows the curve for a slotted flap.

The correct answers are: B shows the curve for a plain flap., C shows the curve for a split flap., C shows that using this device reduces the approach speed for a given mass.

Question 16

Correct

Mark 1.00 out of 1.00

A pilot is flying an aeroplane whose clean configuration stall speed is 60 kt. While cruising at 95 kt the pilot has to take avoiding action against another aeroplane.

The pilot banks the aeroplane sharply and during this manoeuvre, the aeroplane stalls.

Why did the aeroplane stall at 95 kt?

- ☐ A large movement of the ailerons causes both wings to stall at the tips.
- ☐ In a turn, the aeroplane weight increases, which increases the stall speed.
- ☐ The change in airflow due to rapid rolling causes the up-moving wing to stall.
- ☒ A wing stalls when its critical angle of attack is exceeded, regardless of speed. Great job!

The correct answer is: A wing stalls when its critical angle of attack is exceeded, regardless of speed.

Question 17

Correct

Mark 1.00 out of 1.00

Flap-setting errors, such as mis-selection and premature/late extension or retraction of flaps will result in:

- ☐ Decreased take-off distance due to the reduction in drag.
- ☒ Dangerously reduced margin above the stall.
- ☐ Increased climb performance due to the reduction in drag.
- ☒ Increased take-off and landing distances and speeds.
- ☒ Reduced climb performance and shallower descents.

The correct answers are: Increased take-off and landing distances and speeds., Reduced climb performance and shallower descents., Dangerously reduced margin above the stall.

Question 18

Correct

Mark 1.00 out of 1.00

When comparing an elevator trim system with a stabiliser trim system, which of these statements is correct?

- ☐ An elevator trim system is better adapted to larger flight speed ranges.
- ☐ An elevator trim system is able to compensate larger changes in pitching moments.
- ☐ An elevator trim system is more suitable for aeroplanes with a large CG range.
- ☒ An elevator trim system is more sensitive to flutter. Great job!


The correct answer is: An elevator trim system is more sensitive to flutter.

Question 19

Correct

Mark 1.00 out of 1.00

The basic stalling speed of your aircraft is given as 75 kt. At 2g the stalling speed will be:

- ☒ 106 kt.  Great job!
- ☐ 88 kt.
- ☐ 111 kt.
- ☐ 150 kt.

$VS = \text{Stall Speed at } 1g \times \sqrt{\text{Load factor}}$


The correct answer is: 106 kt.

Question 20

Correct

Mark 1.00 out of 1.00

The primary effect of rudder is _____. The secondary effect is sideslip then _____.

- ☒ yaw; roll.  Great job!
- ☐ roll; yaw.
- ☐ roll; pitch
- ☐ yaw; pitch.

The correct answer is: yaw; roll.


Question 21

Incorrect

Mark 0.00 out of 1.00

On entering ground effect:

The ASI may _____.

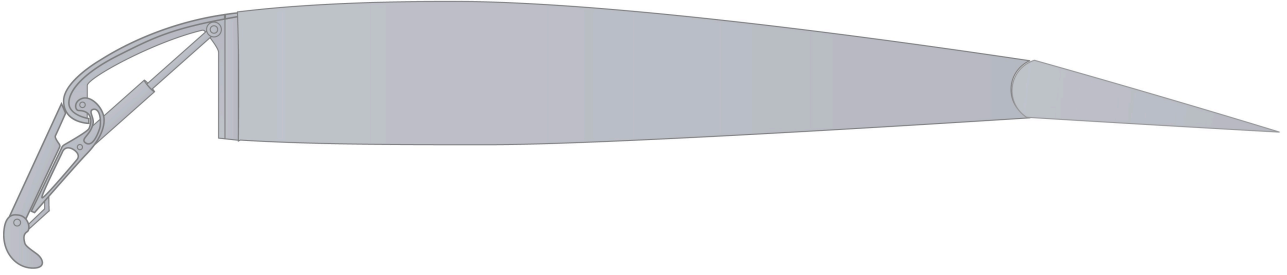
- ☒ overread.  Not quite. Please review the lesson contents.
- ☐ underread.
- ☐ become erratic.

The correct answer is: underread.

Question 22

Correct

Mark 1.00 out of 1.00



This leading edge device is an example of a:

- ☐ Slat.
- ☒ Krueger flap. ✓ Great job!
- ☐ Slotted flap.
- ☐ Slotted fowler flap.

The correct answer is: Krueger flap.

Question 23

Correct

Mark 1.00 out of 1.00

If an aircraft is made to pitch nose-up (positively), without stalling, the load factor will _____.

- ☒ increase ✓ Great job!
- ☐ decrease
- ☐ reduce

The correct answer is: increase

Question 24

Correct

Mark 1.00 out of 1.00

What will happen in ground effect?

- ☐ The wing tip vortices increase in strength.
- ☒ The induced angle of attack and induced drag decrease. ✓ Great job!
- ☐ The wing downwash on the tail surfaces increases.
- ☐ The thrust required will increase significantly.


The correct answer is: The induced angle of attack and induced drag decrease.

Question 25

Correct

Mark 1.00 out of 1.00

Which stall-detection device uses the movement of the leading-edge stagnation point to detect a stall?

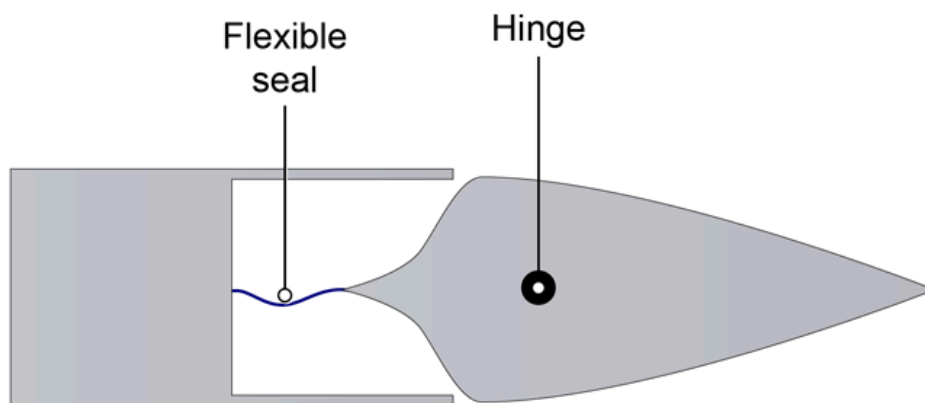
- ☒ A flapper switch.  Great job!
- ☐ A stick shaker.
- ☐ An angle of attack vane.
- ☐ An angle of attack probe.

The correct answer is: A flapper switch.

Question 26


Correct

Mark 1.00 out of 1.00



known as:

This system is

- ☒ An Internal balance.  Great job!
- ☐ A horn balance.
- ☐ A spring balance.
- ☐ A pressure balance

The correct answer is: An Internal balance.

Question 27

Correct

Mark 1.00 out of 1.00

Excessive angle of bank in a turn can result in _____.

- ☐ skid.
- ☒ slip.  Great job!


The correct answer is: slip.

Question 28

Correct

Mark 1.00 out of 1.00

_____ is the stall speed or minimum flight speed in the landing configuration.

- ☐ VSR
- ☐ VS1G
- ☐ VS1
- ☒ VS0  Great job!


The correct answer is: VS0

Question 29

Correct

Mark 1.00 out of 1.00

The equal and opposite reaction to centripetal force is an apparent force called centrifugal force. The amount of centrifugal force is directly equivalent to the wing's _____

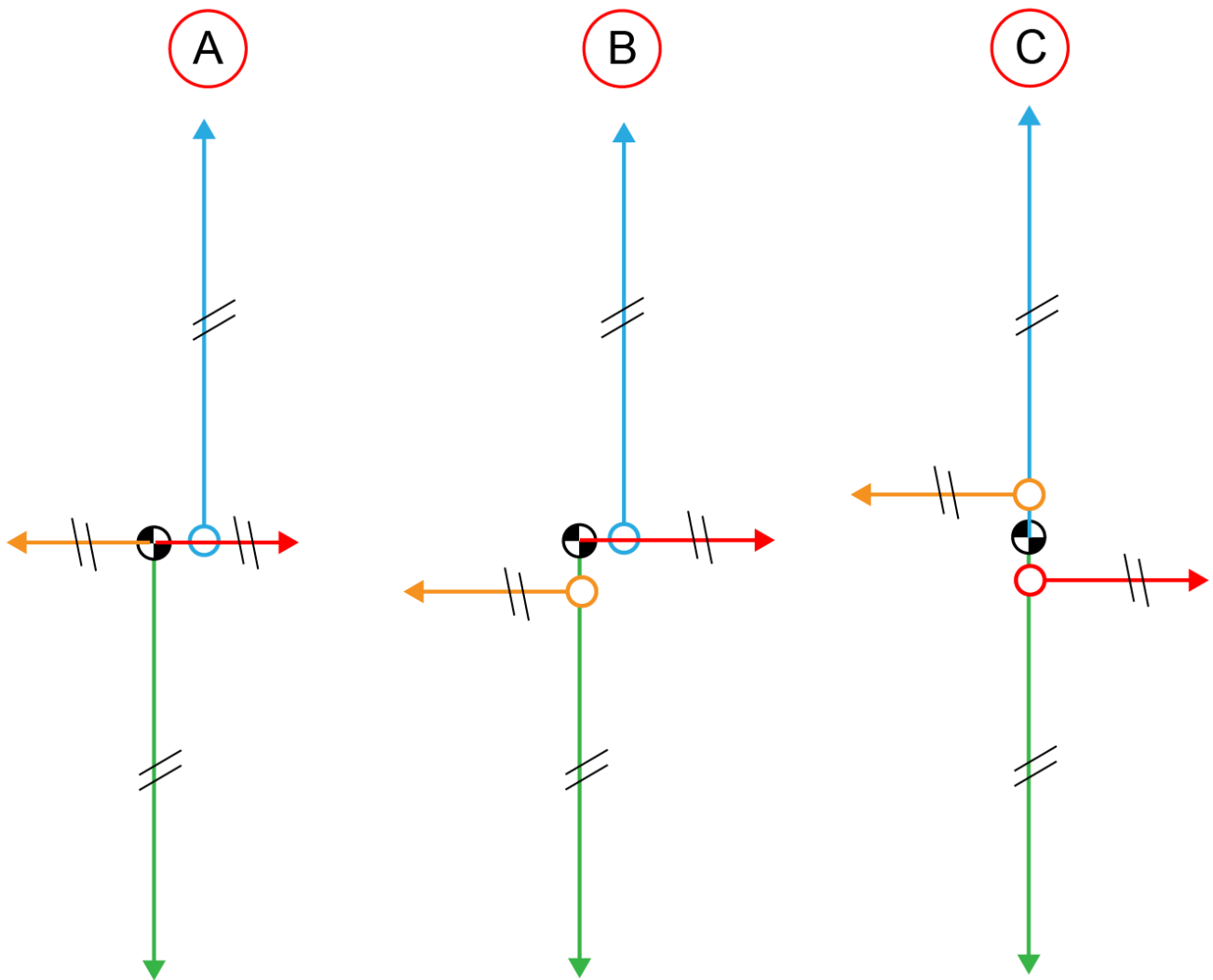
- ☐ aileron effectiveness
- ☒ load factor  Great job!
- ☐ aspect ratio
- ☐ CL

The correct answer is: load factor

Question 30

Incorrect

Mark 0.00 out of 1.00



Study these arrangements of forces for an aircraft in level flight. Given that the aircraft is in equilibrium, which of the following statements are true? Mark all correct answers.

- ☒ The arrangement of forces in B are typical for a CAT aircraft with underslung engines. ✓
- ☒ All 3 diagrams depict steady, level and unaccelerated flight. ✓
- ☐ The T/D couple in C creates a nose-up pitching moment.
- ☐ The pitching moment in A is nose-down.

The correct answers are: All 3 diagrams depict steady, level and unaccelerated flight., The pitching moment in A is nose-down., The arrangement of forces in B are typical for a CAT aircraft with underslung engines.

Question 31


Incorrect

Mark 0.00 out of 1.00

On entering ground effect:

The critical angle _____.

The nose may pitch _____.

- ☐ stays the same; down.
- ☒ increases; down.  Not quite. Please review the lesson contents.
- ☐ reduces; down.
- ☐ reduces; up.


The correct answer is: reduces; down.

Question 32

Correct

Mark 1.00 out of 1.00

A headwind during the glide _____ gliding range and has _____ effect on endurance.

- ☐ increases; an adverse.
- ☐ increases; no.
- ☒ reduces; no.  Great job!
- ☐ reduces; a beneficial.

The correct answer is: reduces; no.

Question 33

Incorrect

Mark 0.00 out of 1.00

Which of the following statements about trimming systems are correct?

Mark all correct answers.

- ☒ a. Trim tabs are not normally used to adjust the attitude of an aircraft. ✓
- ☒ b. A THS is required on large aircraft because conventional trim tabs are unable to generate sufficient pitch moments. ✓
- ☒ c. Trims tabs create balancing moments by generating aerodynamic force. ✓
- ☐ d. Adjustable trims tabs may need to be adjusted many times in a flight.
- ☒ e. Movement of the CP will require the aircraft to be retrimmed. ✓

Your answer is incorrect.

The correct answers are:

Trims tabs create balancing moments by generating aerodynamic force.,

Movement of the CP will require the aircraft to be retrimmed.,

Adjustable trims tabs may need to be adjusted many times in a flight.,

Trim tabs are not normally used to adjust the attitude of an aircraft.,

A THS is required on large aircraft because conventional trim tabs are unable to generate sufficient pitch moments.

Question 34

Incorrect

Mark 0.00 out of 1.00

Considering the effect of wing downwash on the direction of the airflow approaching the tailplane, when flaps are extended the tailplane's negative angle of attack:

- ☐ increases, decreasing the tailplane's effectiveness. ✗ Not quite. Please review the lesson contents.
- ☐ decreases, increasing the tailplane's effectiveness.
- ☐ decreases, decreasing the tailplane's effectiveness.
- ☐ increases, increasing the tailplane's effectiveness.

The correct answer is: increases, increasing the tailplane's effectiveness.

Question 35

Correct

Mark 1.00 out of 1.00

On leaving ground-effect during the take-off _____.

- ☒ the opposite effects to entering ground effect may be experienced. ✓ Great job!
- ☐ no ground-effect changes are experienced.

The correct answer is: the opposite effects to entering ground effect may be experienced.

Question 36

Correct

Mark 1.00 out of 1.00

Assuming constant IAS, when an aeroplane enters ground effect:

- ☒ induced drag reduces. ✔ Great job!
- ☐ the effective angle of attack decreases.
- ☐ the induced angle of attack increases.
- ☐ downwash does not change.

The correct answer is: induced drag reduces.

Question 37

Correct

Mark 1.00 out of 1.00

The effective range of movement of the elevator _____ restricted when a THS is used for trimming in pitch. A THS produces _____ drag than a similar sized conventional tailplane with elevator trimming.

- ☐ is; more.
- ☐ is; less.
- ☒ is not; less. ✔ Great job!
- ☐ is not; more.

The correct answer is: is not; less.

Question 38

Correct

Mark 1.00 out of 1.00

If the CG position is beyond its _____ limit, the aircraft will be unstable and you may not have enough elevator pitch authority to recover from a nose-up condition.

- ☒ aft. ✔ Great job!
- ☐ airborne.
- ☐ forward.

The correct answer is: aft.

Question 39

Correct

Mark 1.00 out of 1.00

A swept-back wing, in comparison to a straight wing, has an increased tendency to:

- ☒ tip stall. ✔ Great job!
- ☐ mid-wing stall.
- ☐ root stall.
- ☐ high-speed stall.

The correct answer is: tip stall.

Question 40

Correct

Mark 1.00 out of 1.00

_____ is the stall speed, or minimum steady flight speed, for which the aircraft is still controllable in a specific configuration.

- ☒ VS1 ✔ Great job!
- ☐ VSR
- ☐ VS1G
- ☐ VS0

The correct answer is: VS1

Question 41

Correct

Mark 1.00 out of 1.00

Mass balancing of control surfaces is used to:

- ☒ prevent flutter of control surfaces. ✔ Great job!
- ☐ ensure that the control surfaces are in the mid-position during taxiing.
- ☐ increase the stick force stability.
- ☐ limit the stick forces.

The correct answer is: prevent flutter of control surfaces.

Question 42

Correct

Mark 1.00 out of 1.00

The shallowest glide angle is achieved when the aircraft is gliding:

- ☐ At the slowest IAS possible without stalling.
- ☐ At a ratio of 20:1.
- ☐ At the speed which equates to 4° alpha.
- ☒ At the speed which equates to the best L/D ratio. ✓ Great job!

The correct answer is: At the speed which equates to the best L/D ratio.

Question 43

Correct

Mark 1.00 out of 1.00

When fitted, leading edge devices are _____ extended before or at the same time as trailing edge devices. They _____ the wing's camber and don't change the position of the CP.

- ☒ always; increase. ✓ Great job!
- ☐ sometimes; reduce.
- ☐ always; reduce.
- ☐ sometimes; increase.

The correct answer is: always; increase.

Question 44

Correct

Mark 1.00 out of 1.00

In level flight, when the CP and CG are in their usual positions, there is a residual _____ pitching moment which must be counterbalanced by a force produced by the tailplane. This requires the wings to create _____ lift resulting in trim drag.

- ☒ nose-down; more. ✓ Great job!
- ☐ nose-up; less.
- ☐ nose-up; more.
- ☐ nose-down; less.

The correct answer is: nose-down; more.

Question 45

Correct

Mark 1.00 out of 1.00

Valid uses for speed brakes include: Mark all correct answers.

- ☒ Increasing the angle of descent. ✓
- ☐ Reducing drag by lowering VMD.
- ☒ Reducing airspeed rapidly. ✓
- ☒ Increasing the rate of descent. ✓
- ☒ Controlling the airspeed in a descent. ✓

The correct answers are: Reducing airspeed rapidly., Increasing the angle of descent., Increasing the rate of descent., Controlling the airspeed in a descent.