

TEMA: 0114 ATP - (CHAP. 03) AERODYNAMICS

COD_PREG:	PREGUNTA:	RPTA:
PREG20078023 (8358)	What is the safest and most efficient takeoff and initial climb procedure in a light, twin-engine airplane? Accelerate to	C
OPCION A:	best engine-out, rate-of-climb airspeed while on the ground, then lift off and climb at that speed.	
OPCION B:	V _{mc} , then lift off at that speed and climb at maximum angle-of-climb airspeed.	
OPCION C:	an airspeed slightly above V _{mc} , then lift off and climb at the best rate-of-climb airspeed.	
OPCION D:		
PREG20078024 (8359)	What procedure is recommended for an engine-out approach and landing?	A
OPCION A:	The flightpath and procedures should be almost identical to a normal approach and landing.	
OPCION B:	The altitude and airspeed should be considerably higher than normal throughout the approach.	
OPCION C:	A normal approach, except do not extend the landing gear or flaps until over the runway threshold.	
OPCION D:		
PREG20078029 (8364)	What does the blue radial line on the airspeed indicator of a light, twin-engine airplane represent?	A
OPCION A:	Maximum single-engine rate of climb.	
OPCION B:	Maximum single-engine angle of climb.	
OPCION C:	Minimum controllable airspeed for single-engine operation.	
OPCION D:		
PREG20078030 (8365)	Identify the type stability if the aircraft attitude remains in the new position after the controls have been neutralized.	C
OPCION A:	Negative longitudinal static stability.	
OPCION B:	Neutral longitudinal dynamic stability.	
OPCION C:	Neutral longitudinal static stability.	
OPCION D:		
PREG20078031 (8366)	What is a characteristic of longitudinal instability?	A
OPCION A:	Pitch oscillations becoming progressively greater.	
OPCION B:	Bank oscillations becoming progressively greater.	
OPCION C:	Aircraft constantly tries to pitch down.	
OPCION D:		
PREG20078032 (8367)	Describe dynamic longitudinal stability.	B

-
- OPCION A:** Motion about the longitudinal axis.
OPCION B: Motion about the lateral axis.
OPCION C: Motion about the vertical axis.
OPCION D:
-

- PREG20078033 (8368) What is the reason for variations in geometric pitch along a propeller or rotor blade? A
- OPCION A:** It permits a relatively constant angle of attack along its length when in cruising flight.
OPCION B: It prevents the portion of the blade near the hub or root from stalling during cruising flight.
OPCION C: It permits a relatively constant angle of incidence along its length when in cruising flight.
OPCION D:
-

- PREG20078034 (8372) Identify the type stability if the aircraft attitude tends to move farther from its original position after the controls have been neutralized. A
- OPCION A:** Negative static stability.
OPCION B: Positive static stability.
OPCION C: Negative dynamic stability.
OPCION D:
-

- PREG20078035 (8373) Identify the type stability if the aircraft attitude tends to return to its original position after the controls have been neutralized. B
- OPCION A:** Positive dynamic stability.
OPCION B: Positive static stability.
OPCION C: Neutral dynamic stability.
OPCION D:
-

- PREG20078036 (8375) What flight condition should be expected when an aircraft leaves ground effect? A
- OPCION A:** An increase in induced drag requiring a higher angle of attack.
OPCION B: A decrease in parasite drag permitting a lower angle of attack.
OPCION C: An increase in dynamic stability.
OPCION D:
-

- PREG20078037 (8376) What characteristic should exist if an airplane is loaded to the rear of its CG range? C
- OPCION A:** Sluggish in aileron control.
OPCION B: Sluggish in rudder control.
OPCION C: Unstable about the lateral axis.
OPCION D:
-

- PREG20078038 (8377) What will be the ratio between airspeed and lift if the angle of attack and other factors remain constant and airspeed is doubled? Lift will be C

-
- OPCION A:** the same.
OPCION B: two times greater.
OPCION C: four times greater.
OPCION D:
-

- PREG20078039 (8378) What true airspeed and angle of attack should be used to generate the same amount of lift as altitude is increased? B
- OPCION A:** The same true airspeed and angle of attack.
OPCION B: A higher true airspeed for any given angle of attack.
OPCION C: A lower true airspeed and higher angle of attack.
OPCION D:
-

- PREG20078040 (8379) How can an airplane produce the same lift in ground effect as when out of ground effect? B
- OPCION A:** The same angle of attack.
OPCION B: A lower angle of attack.
OPCION C: A higher angle of attack.
OPCION D:
-

- PREG20078041 (8380) What are some characteristics of an airplane loaded with the CG at the aft limit? A
- OPCION A:** Lowest stall speed, highest cruise speed, and least stability.
OPCION B: Highest stall speed, highest cruise speed, and least stability.
OPCION C: Lowest stall speed, lowest cruise speed, and highest stability.
OPCION D:
-

- PREG20078042 (8382) By changing the angle of attack of a wing, the pilot can control the airplane's lift, gross weight, and drag. B
- OPCION A:** lift, gross weight, and drag.
OPCION B: lift, airspeed, and drag.
OPCION C: lift and airspeed, but not drag.
OPCION D:
-

- PREG20078043 (8384) The primary purpose of high-lift devices is to increase the lift at low speeds. B
- OPCION A:** L/Dmax.
OPCION B: lift at low speeds.
OPCION C: drag and reduce airspeed.
OPCION D:
-

- PREG20078044 (8385) What is the primary function of the leading edge flaps in landing configuration during the flare before touchdown? A
- OPCION A:** Prevent flow separation.
OPCION B: Decrease rate of sink.

OPCION C: Increase profile drag.

OPCION D:

PREG20078045 (8386) What effect does the leading edge slot in the wing have on performance? B

OPCION A: Decreases profile drag.

OPCION B: Changes the stalling angle of attack to a higher angle.

OPCION C: Decelerates the upper surface boundary layer air.

OPCION D:

PREG20078046 (8387) Within what Mach range does transonic flight regimes usually occur? B

OPCION A: .50 to .75 Mach.

OPCION B: .75 to 1.20 Mach.

OPCION C: 1.20 to 2.50 Mach.

OPCION D:

PREG20078047 (8388) What is the highest speed possible without supersonic flow over the wing? B

OPCION A: Initial buffet speed.

OPCION B: Critical Mach number.

OPCION C: Transonic index.

OPCION D:

PREG20078048 (8389) What is the free stream Mach number which produces first evidence of local sonic flow? C

OPCION A: Supersonic Mach number.

OPCION B: Transonic Mach number.

OPCION C: Critical Mach number.

OPCION D:

PREG20078049 (8390) At what Mach range does the subsonic flight range normally occur? A

OPCION A: Below .75 Mach.

OPCION B: From .75 to 1.20 Mach.

OPCION C: From 1.20 to 2.50 Mach.

OPCION D:

PREG20078050 (8391) What is the principal advantage of a sweepback design wing over a straightwing design? A

OPCION A: The critical Mach number will increase significantly.

OPCION B: Sweepback will increase changes in the magnitude of force coefficients due to compressibility.

OPCION C: Sweepback will accelerate the onset of compressibility effect.

OPCION D:

PREG20078051 (8392) What is the result of a shock-induced separation of airflow occurring symmetrically near the wing root of a sweptwing aircraft? B

OPCION A: A high-speed stall and sudden pitchup.
OPCION B: A severe moment or "tuck under".
OPCION C: Severe porpoising.
OPCION D:

PREG20078052 (8393) What is one disadvantage of a sweptwing design? B

OPCION A: The wing root stalls prior to the wingtip section.
OPCION B: The wingtip section stalls prior to the wing root.
OPCION C: Severe pitchdown moment when the center of pressure shifts forward.
OPCION D:

PREG20078053 (8394) What is the condition known as when gusts cause a sweptwing-type airplane to roll in one direction while yawing in the other? C

OPCION A: Porpoise.
OPCION B: Wingover.
OPCION C: Dutch roll.
OPCION D:

PREG20078054 (8395) What is the movement of the center of pressure when the wingtips of a sweptwing airplane are shock-stalled first? B

OPCION A: Inward and aft.
OPCION B: Inward and forward.
OPCION C: Outward and forward.
OPCION D:

PREG20078055 (8396) For a given angle of bank, the load factor imposed on both the aircraft and pilot in a coordinated constant-altitude turn C

OPCION A: is directly related to the airplane's gross weight.
OPCION B: varies with the rate of turn.
OPCION C: is constant.
OPCION D:

PREG20078056 (8397) What is the relationship between induced and parasite drag when the gross weight is increased? B

OPCION A: Parasite drag increases more than induced drag.
OPCION B: Induced drag increases more than parasite drag.
OPCION C: Both parasite and induced drag are equally increased.
OPCION D:

PREG20078057 (8399) At which speed will increasing the pitch attitude cause an airplane to climb? B

-
- OPCION A:** Low speed.
OPCION B: High speed.
OPCION C: Any speed.
OPCION D:
-

PREG20077991 (8324) When are inboard ailerons normally used? C

- OPCION A:** Low-speed flight only.
OPCION B: High-speed flight only.
OPCION C: Low-speed and high-speed flight.
OPCION D:
-

PREG20077992 (8325) When are outboard ailerons normally used? A

- OPCION A:** Low-speed flight only.
OPCION B: High-speed flight only.
OPCION C: Low-speed and high-speed flight.
OPCION D:
-

PREG20077993 (8326) Which of the following is considered a primary flight control? B

- OPCION A:** Slats.
OPCION B: Elevator.
OPCION C: Dorsal fin.
OPCION D:
-

PREG20077994 (8327) Which of the following is considered an auxiliary flight control? C

- OPCION A:** Ruddervator.
OPCION B: Upper rudder.
OPCION C: Leading-edge flaps.
OPCION D:
-

PREG20077995 (8328) What is the purpose of a control tab? A

- OPCION A:** Move the flight controls in the event of manual reversion.
OPCION B: Reduce control forces by deflecting in the proper direction to move a primary flight control.
OPCION C: Prevent a control surface from moving to a full-deflection position due to aerodynamic forces.
OPCION D:
-

PREG20077996 (8329) What is the purpose of an anti-servo tab? C

- OPCION A:** Move the flight controls in the event of manual reversion.

OPCION B: Reduce control forces by deflecting in the proper direction to move a primary flight control.

OPCION C: Prevent a control surface from moving to a full-deflection position due to aerodynamic forces.

OPCION D:

PREG20077997 (8330) What is the purpose of a servo tab? B

OPCION A: Move the flight controls in the event of manual reversion.

OPCION B: Reduce control forces by deflecting in the proper direction to move a primary flight control.

OPCION C: Prevent a control surface from moving to a full-deflection position due to aerodynamic forces.

OPCION D:

PREG20077998 (8331) Which is a purpose of leading-edge flaps? A

OPCION A: Increase the camber of the wing.

OPCION B: Reduce lift without increasing airspeed.

OPCION C: Direct airflow over the top of the wing at high angles of attack.

OPCION D:

PREG20077999 (8332) What is a purpose of flight spoilers? B

OPCION A: Increase the camber of the wing.

OPCION B: Reduce lift without increasing airspeed.

OPCION C: Direct airflow over the top of the wing at high angles of attack.

OPCION D:

PREG20078000 (8333) For which purpose may flight spoilers be used? A

OPCION A: Reduce the wings' lift upon landing.

OPCION B: Increase the rate of descent without increasing aerodynamic drag.

OPCION C: Aid in longitudinal balance when rolling an airplane into a turn.

OPCION D:

PREG20078001 (8334) Which is a purpose of leading-edge slats on high-performance wings? C

OPCION A: Decrease lift at relative slow speeds.

OPCION B: Improve aileron control during low angles of attack.

OPCION C: Direct air from the high pressure area under the leading edge along the top of the wing.

OPCION D:

PREG20078002 (8335) Which is a purpose of leading-edge slats on high-performance wings? C

-
- OPCION A:** Decrease lift at relative slow speeds.
OPCION B: Improve aileron control during low angles of attack.
OPCION C: Direct air from the high pressure area under the leading edge along the top of the wing.
OPCION D:
-

PREG20078003 (8336) Which is a purpose of ground spoilers? A

- OPCION A:** Reduce the wings' lift upon landing.
OPCION B: Aid in rolling an airplane into a turn.
OPCION C: Increase the rate of descent without gaining airspeed.
OPCION D:
-

PREG20078004 (8337) Which direction from the primary control surface does an anti-servo tab move? A

- OPCION A:** Same direction.
OPCION B: Opposite direction.
OPCION C: Remains fixed for all positions.
OPCION D:
-

PREG20078005 (8338) Which direction from the primary control surface does a servo tab move? B

- OPCION A:** Same direction.
OPCION B: Opposite direction.
OPCION C: Remains fixed for all positions.
OPCION D:
-

PREG20078006 (8339) Which direction from the primary control surface does an elevator adjustable trim tab move when the control surface is moved? C

- OPCION A:** Same direction.
OPCION B: Opposite direction.
OPCION C: Remains fixed for all positions.
OPCION D:
-

PREG20078007 (8340) What is the purpose of an elevator trim tab? C

- OPCION A:** Provide horizontal balance as airspeed is increased to allow hands-off flight.
OPCION B: Adjust the speed tail load for different airspeeds in flight allowing neutral control forces.
OPCION C: Modify the downward tail load for various airspeeds in flight eliminating flight-control pressures.
OPCION D:
-

PREG20078008 (8341) Which is a purpose of wing-mounted vortex generators? A

-
- OPCION A:** Reduce the drag caused by supersonic flow over portions of the wing.
- OPCION B:** Increase the onset of drag divergence and aid in aileron effectiveness at high speed.
- OPCION C:** Break the airflow over the wing so the stall will progress from the root out to the tip of the wing.
- OPCION D:**
-

PREG20078009 (8342) Why do some airplanes equipped with inboard/outboard ailerons use the outboards for slow flight only? B

- OPCION A:** Increased surface area provides greater controllability with flap extension.
- OPCION B:** Aerodynamic loads on the outboard ailerons tend to twist the wingtips at high speeds.
- OPCION C:** Locking out the outboard ailerons in high-speed flight provides variable flight control feel.
- OPCION D:**
-

PREG20078010 (8343) Which of the following are considered primary flight controls? C

- OPCION A:** Tabs.
- OPCION B:** Flaps.
- OPCION C:** Outboard ailerons.
- OPCION D:**
-

PREG20078011 (8345) What effect does an increase in airspeed have on a coordinated turn while maintaining a constant angle of bank and altitude? C

- OPCION A:** The rate of turn will decrease resulting in a decreased load factor.
- OPCION B:** The rate of turn will increase resulting in an increased load factor.
- OPCION C:** The rate of turn will decrease resulting in no changes in load factor.
- OPCION D:**
-

PREG20078012 (8346) What is the effect on total drag of an aircraft if the airspeed decreases in level flight below that speed for maximum L/D? A

- OPCION A:** Drag increases because of increased induced drag.
- OPCION B:** Drag increases because of increased parasite drag.
- OPCION C:** Drag decreases because of lower induced drag.
- OPCION D:**
-

PREG20078013 (8347) What is load factor? C

- OPCION A:** Lift multiplied by the total weight.
- OPCION B:** Lift subtracted from the total weight.
- OPCION C:** Lift divided by the total weight.
- OPCION D:**
-

PREG20078014 (8348) What affects indicated stall speed? A

-
- OPCION A:** Weight, load factor, and power.
OPCION B: Load factor, angle of attack, and power.
OPCION C: Angle of attack, weight, and air density.
OPCION D:
-

- PREG20078015 (8349) If no corrective action is taken by the pilot as angle of bank is increased, how is the vertical component of lift and sink rate affected? C
- OPCION A:** Lift increases and the sink rate increases.
OPCION B: Lift decreases and the sink rate decreases.
OPCION C: Lift decreases and the sink rate increases.
OPCION D:
-

- PREG20078016 (8350) Why must the angle of attack be increased during a turn to maintain altitude? A
- OPCION A:** Compensate for loss of vertical component of lift.
OPCION B: Increase the horizontal component of lift equal to the vertical component.
OPCION C: Compensate for increase in drag.
OPCION D:
-

- PREG20078017 (8351) How can the pilot increase the rate of turn and decrease the radius at the same time? B
- OPCION A:** Steepen the bank and increase airspeed.
OPCION B: Steepen the bank and decrease airspeed.
OPCION C: Shallow the bank and increase airspeed.
OPCION D:
-

- PREG20078018 (8352) What is the relationship of the rate of turn with the radius of turn with a constant angle of bank but increasing airspeed? A
- OPCION A:** Rate will decrease and radius will increase.
OPCION B: Rate will increase and radius will decrease.
OPCION C: Rate and radius will increase.
OPCION D:
-

- PREG20078019 (8353) Upon which factor does wing loading during a level coordinated turn in smooth air depend? B
- OPCION A:** Rate of turn.
OPCION B: Angle of bank.
OPCION C: True airspeed.
OPCION D:
-

- PREG20078020 (8354) If an aircraft with a gross weight of 2,000 pounds were subjected to a total load of 6,000 pounds in flight, the load factor would be B
- OPCION A:** 2 Gs.
OPCION B: 3 Gs.

OPCION C: 9 Gs.

OPCION D:

PREG20078021 (8356) Airflow separation over the wing can be delayed by using vortex generators C

OPCION A: directing high pressure air over the top of the wing or flap through slots and making the wing surface smooth.

OPCION B: directing a suction over the top of the wing or flap through slots and making the wing surface smooth.

OPCION C: making the wing surface rough and/or directing high pressure air over the top of the wing or flap through slots.

OPCION D:

PREG20078022 (8357) In a light, twin-engine airplane with one engine inoperative, when is it acceptable to allow the ball of a slip-skid indicator to be deflected outside the reference lines? B

OPCION A: While maneuvering at minimum controllable airspeed to avoid overbanking.

OPCION B: When operating at any airspeed greater than Vmc.

OPCION C: When practicing imminent stalls in a banked attitude.

OPCION D:

PREG20078025 (8360) What performance should a pilot of a light, twin-engine airplane be able to maintain at Vmc? A

OPCION A: Heading.

OPCION B: Heading and altitude.

OPCION C: Heading, altitude, and ability to climb 50 ft/min.

OPCION D:

PREG20078026 (8361) What criteria determines which engine is the "critical" engine of a twin-engine airplane? A

OPCION A: The one with the center of thrust closest to the centerline of the fuselage.

OPCION B: The one designated by the manufacturer which develops most usable thrust.

OPCION C: The one with the center of thrust farthest from the centerline of the fuselage.

OPCION D:

PREG20078027 (8362) What effect, if any, does altitude have on Vmc for an airplane with unsupercharged engines? C

OPCION A: None.

OPCION B: Increases with altitude.

OPCION C: Decreases with altitude.

OPCION D:

PREG20078028 (8363) Under what condition should stalls never be practiced in a twin-engine airplane? A

OPCION A: With one engine inoperative.

OPCION B: With climb power on.

OPCION C: With full flaps and gear extended.

OPCION D:
