

**TEMA:** 0621                          ATP-RTC - Aerodynamics - Chap.3

<b>COD PREG:</b>	<b>PREGUNTA:</b>	<b>RPTA:</b>
PREG20097905	During an autorotation (collective pitch full down), what is an increase in rotor RPM associated with?	A
<b>OPCION A:</b>	An increase in airflow through the rotor system.	
<b>OPCION B:</b>	A decrease in airflow through the rotor system.	
<b>OPCION C:</b>	A decrease in airspeed.	

---

PREG20097898	How should a quick stop be initiated?	B
<b>OPCION A:</b>	Raise collective pitch.	
<b>OPCION B:</b>	Apply aft pitch.	
<b>OPCION C:</b>	Decrease RPM while raising collective pitch.	

---

PREG20097899	How does Vne speed vary with altitude?	C
<b>OPCION A:</b>	Varies directly with altitude.	
<b>OPCION B:</b>	Remains the same at all altitudes.	
<b>OPCION C:</b>	Varies inversely with altitude.	

---

PREG20097900	What limits the high airspeed potential of a helicopter?	B
<b>OPCION A:</b>	Harmonic resonance.	
<b>OPCION B:</b>	Retreating blade stall.	
<b>OPCION C:</b>	Rotor RPM limitations.	

---

PREG20097901	What corrective action can a pilot take to recover from settling with power?	C
<b>OPCION A:</b>	Increase forward speed and raise collective pitch.	
<b>OPCION B:</b>	Decrease forward speed and partially raise collective pitch.	
<b>OPCION C:</b>	Increase forward speed and partially lower collective pitch.	

---

PREG20097903	During a hover, a helicopter tends to drift in the direction of a tail rotor thrust. What is the movement called?	A
<b>OPCION A:</b>	Translating tendency.	
<b>OPCION B:</b>	Transverse flow effect.	
<b>OPCION C:</b>	Gyroscopic precession.	

---

PREG20097904	What is the purpose of the lead-lag (drag) hinge in a three-bladed, fully articulated helicopter rotor system?	B
<b>OPCION A:</b>	Offset lateral instability during autorotation.	
<b>OPCION B:</b>	Compensate for Coriolis effect.	
<b>OPCION C:</b>	Provide geometric balance.	

---

---

PREG20097906	What corrective action can a pilot take to prevent a retreating blade stall at its onset?	A
<b>OPCION A:</b>	Reduce collective pitch and increase rotor RPM.	
<b>OPCION B:</b>	Increase collective pitch and increase rotor RPM.	
<b>OPCION C:</b>	Reduce collective pitch and decrease rotor RPM.	

---

PREG20097915	Under what condition would it be necessary to cause the tail rotor to direct thrust to the left on an American-made helicopter?	B
<b>OPCION A:</b>	To maintain heading with a left crosswind.	
<b>OPCION B:</b>	To counteract the drag of the transmission during autorotation.	
<b>OPCION C:</b>	To execute hovering turns to the right.	

---

PREG20097908	How does high density altitude affect helicopter performance?	B
<b>OPCION A:</b>	Engine and rotor efficiency are increased.	
<b>OPCION B:</b>	Engine and rotor efficiency are reduced.	
<b>OPCION C:</b>	Engine efficiency is reduced, but rotor efficiency is increased.	

---

PREG20097909	How is the helicopter climb performance most adversely affected?	A
<b>OPCION A:</b>	Higher-than-standard temperature and high relative humidity.	
<b>OPCION B:</b>	Lower-than-standard temperature and high relative humidity.	
<b>OPCION C:</b>	Higher-than-standard temperature and low relative humidity.	

---

PREG20097910	What causes Coriolis effect?	C
<b>OPCION A:</b>	Differential thrust of rotor blades.	
<b>OPCION B:</b>	Changing angle of attack of blades during rotation.	
<b>OPCION C:</b>	Shift in center of mass of flapping blade.	

---

PREG20097911	Why are the rotor blades more efficient when operating in ground effect?	A
<b>OPCION A:</b>	Induced drag is reduced.	
<b>OPCION B:</b>	Induced angle of attack is increased.	
<b>OPCION C:</b>	Downwash velocity is accelerated.	

---

PREG20097912	What result does a level turn have on the total lift force and load factor?	C
<b>OPCION A:</b>	Lift force remains constant and the load factor increases.	
<b>OPCION B:</b>	Lift force increases and the load factor decreases.	
<b>OPCION C:</b>	Both total lift force and load factor increase.	

---

PREG20097913	What causes a helicopter to turn?	B
<b>OPCION A:</b>	Centrifugal force.	
<b>OPCION B:</b>	Horizontal component of lift.	
<b>OPCION C:</b>	Greater angle of attack of rotor blades on upward side of the rotor disc.	

---

---

PREG20097914	What is the primary purpose of the tail rotor system?	C
<b>OPCION A:</b>	Maintain heading during forward flight.	
<b>OPCION B:</b>	Act as a rudder to assist in coordinated turns.	
<b>OPCION C:</b>	Counteract the torque effect of the main rotor.	

---

PREG20097897	How should a pilot execute a pinnacle-type approach to a rooftop heliport in conditions of high wind and turbulence?	A
<b>OPCION A:</b>	Steeper-than-normal approach, maintaining the desired angle of descent with collective.	
<b>OPCION B:</b>	Normal approach, maintaining a slower-than-normal rate of descent with cyclic.	
<b>OPCION C:</b>	Shallow approach, maintaining a constant line of descent with cyclic.	

---

PREG20097916	Which statement describes the term "VTOSS"?	B
<b>OPCION A:</b>	The takeoff safety speed in a turbine-engine powered transport category airplane.	
<b>OPCION B:</b>	The takeoff safety speed in a Category A helicopter.	
<b>OPCION C:</b>	The takeoff stall speed in the takeoff configuration in a turbo-propeller powered airplane.	

---

PREG20097907	Which is a major warning of approaching retreating blade stall?	C
<b>OPCION A:</b>	High frequency vibration.	
<b>OPCION B:</b>	Tendency to roll opposite the stalled side of the rotor.	
<b>OPCION C:</b>	Pitchup of the nose.	

---

PREG20097896	What is the relationship between induced and parasite drag when the gross weight is increased?	B
<b>OPCION A:</b>	Parasite drag increases more than induced drag	
<b>OPCION B:</b>	Induced drag increases more than parasite drag.	
<b>OPCION C:</b>	Both parasite and induced drag are equally increased	

---

PREG20097902	The lift differential that exists between the advancing main rotor blade and the retreating main rotor blade is known as	B
<b>OPCION A:</b>	Coriolis effect.	
<b>OPCION B:</b>	dissymmetry of lift.	
<b>OPCION C:</b>	translating tendency.	

---

PREG20097894	What true airspeed and angle of attack should be used to generate the same of lift as altitude is increased?	B
<b>OPCION A:</b>	The same true airspeed and angle of attack	
<b>OPCION B:</b>	A higher true airspeed for any given angle of attack	
<b>OPCION C:</b>	A lower true airspeed and higher angle of attack	

---

---

PREG20097895	For a given angle of bank, the load factor imposed on both the aircraft and pilot in a coordinated constant-altitude turn	C
<b>OPCION A:</b>	is directly related to the airplane's gross weight	
<b>OPCION B:</b>	varies with the rate of turn	
<b>OPCION C:</b>	is constant	

---

PREG20097876	What effect does an increase in airspeed have on a coordinated turn while maintaining a constant angle of bank and altitude?	C
<b>OPCION A:</b>	The rate of turn will decrease resulting in a decreased load factor	
<b>OPCION B:</b>	The rate of turn will increase resulting in an increased load factor	
<b>OPCION C:</b>	The rate of turn will decrease resulting in no changes in load factor	

---

PREG20097877	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
<b>OPCION A:</b>	Drag increases because of increased induced drag.	
<b>OPCION B:</b>	Drag increases because of increased parasite drag	
<b>OPCION C:</b>	Drag decreases because of lower induced drag	

---

PREG20097879	What affects indicated stall speed?	A
<b>OPCION A:</b>	Weight, load factor, and power	
<b>OPCION B:</b>	Load factor, angle of attack, and power	
<b>OPCION C:</b>	Angle of attack, weight, and air density	

---

PREG20097880	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
<b>OPCION A:</b>	Lift increases and the sink rate increases	
<b>OPCION B:</b>	Lift decreases and the sink rate decreases	
<b>OPCION C:</b>	Lift decreases and the sink rate increases	

---

PREG20097881	Why must the angle of attack be increased during a turn to maintain altitude?	A
<b>OPCION A:</b>	Compensate for loss of vertical component of lift	
<b>OPCION B:</b>	Increase the horizontal component of lift equal to the vertical component	
<b>OPCION C:</b>	Compensate for increase in drag	

---

PREG20097882	How can the pilot increase the rate of turn and decrease the radius at the same time?	B
<b>OPCION A:</b>	Steepen the bank and increase airspeed	
<b>OPCION B:</b>	Steepen the bank and decrease airspeed	
<b>OPCION C:</b>	Shallow the bank and increase airspeed	

---

---

PREG20097883	What is the relationship of the rate of turn with the radius of turn with a constant angle of bank but increasing airspeed?	A
<b>OPCION A:</b>	Rate will decrease and radius will increase	
<b>OPCION B:</b>	Rate will increase and radius will decrease	
<b>OPCION C:</b>	Rate and radius will increase	

---

PREG20097884	Upon which factor does wing loading during a level coordinated turn in smooth air depend?	B
<b>OPCION A:</b>	Rate of turn	
<b>OPCION B:</b>	Angle of bank	
<b>OPCION C:</b>	True airspeed	

---

PREG20097878	What is load factor?	C
<b>OPCION A:</b>	Lift multiplied by the total weight	
<b>OPCION B:</b>	Lift subtracted from the total weight	
<b>OPCION C:</b>	Lift divided by the total weight	

---

PREG20097886	What is the ratio between the total air load imposed on the rotor disc and the gross weight of a helicopter in flight?	B
<b>OPCION A:</b>	Power loading.	
<b>OPCION B:</b>	Load factor.	
<b>OPCION C:</b>	Aspect ratio.	

---

PREG20097885	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
<b>OPCION A:</b>	2 Gs.	
<b>OPCION B:</b>	3 Gs	
<b>OPCION C:</b>	9 Gs.	

---

PREG20097891	What flight condition should be expected when an aircraft leaves ground effect?	A
<b>OPCION A:</b>	An increase in induced drag requiring a higher angle of attack	
<b>OPCION B:</b>	A decrease in parasite drag permitting a lower angle of attack	
<b>OPCION C:</b>	An increase in dynamic stability	

---

PREG20097890	Identify the type stability if the aircraft attitude tends to return to its original position after the controls have been neutralized	B
<b>OPCION A:</b>	Positive dynamic stability	
<b>OPCION B:</b>	Positive static stability	
<b>OPCION C:</b>	Neutral dynamic stability	

---

PREG20097892	What characteristic should exist if an airplane is loaded to the rear of its CG range?	C
<b>OPCION A:</b>	Sluggish in aileron control	

---

**OPCION B:** Sluggish in rudder control

**OPCION C:** Unstable about the lateral axis

---

PREG20097888 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.

---

PREG20097887 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

---

PREG20097889 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

---

PREG20097893 What will be the ratio between airspeed and lift if the angle 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

---

