

Gyroplane questions – from Rotorcraft Commercial Bank**(From Rotorcraft questions that obviously are either gyroplane or not helicopter)****"X" in front of the answer indicates the likely correct answer.****Note: For associated Figures click here**http://www.air.flyingway.com/faa_exam/heli/gyroplane_test_figures.pdf

FAA Question Number: 5.0.5.8

FAA Knowledge Code: B09

To begin a flight in a rotorcraft under VFR, there must be enough fuel to fly to the first point of intended landing and, assuming normal cruise speed, to fly thereafter for at least

- A. 30 minutes.
- B. 45 minutes.
- X C. 20 minutes.

FAA Question Number: 5.0.4.6

FAA Knowledge Code: B07

When operating a U.S.-registered civil aircraft, which document is required by regulation to be available in the aircraft?

- A. An Owner's Manual.
- B. A manufacturer's Operations Manual.
- X C. A current, approved Rotorcraft Flight Manual.

FAA Question Number: 5.0.6.7

FAA Knowledge Code: B11

Approved flotation gear, readily available to each occupant, is required on each helicopter if it is being flown for hire over water,

- A. more than 50 statute miles from shore.
- B. in amphibious aircraft beyond 50 NM from shore.
- X C. beyond power-off gliding distance from shore.

FAA Question Number: 5.0.7.2

FAA Knowledge Code: B11

What transponder equipment is required for helicopter operations within Class B airspace? A transponder

- X A. with 4096 code and Mode C capability.
- B. is required for helicopter operations when visibility is less than 3 miles.
- C. with 4096 code capability is required except when operating at or below 1,000 feet AGL under the terms of a letter of agreement.

FAA Question Number: 5.1.6.8

FAA Knowledge Code: H307

For gyroplanes with constant-speed propellers, the first indication of carburetor icing is usually

- A. engine roughness followed by a decrease in engine RPM.
- B. a decrease in engine RPM.
- X C. a decrease in manifold pressure.

FAA Question Number: 5.2.3.9

FAA Knowledge Code: H70

When the angle of attack of a symmetrical airfoil is increased, the center of pressure will

- A. move aft along the airfoil surface.
- B. remain unaffected.
- X C. have very limited movement.

FAA Question Number: 5.2.4.0

FAA Knowledge Code: H71

Coning is caused by the combined forces of

- X A. lift and centrifugal force.
- B. flapping and centrifugal force.
- C. drag, weight, and translational lift.

FAA Question Number: 5.2.4.1

FAA Knowledge Code: H71

The forward speed of a rotorcraft is restricted primarily by

- A. transverse flow effect.
- B. high-frequency vibrations.
- X C. dissymmetry of lift.

FAA Question Number: 5.2.4.3

FAA Knowledge Code: H71

The purpose of lead-lag (drag) hinges in a three-bladed, fully articulated helicopter rotor system is to compensate for

- A. blade flapping tendency.
- B. dissymmetry of lift.
- X C. Coriolis effect.

FAA Question Number: 5.2.4.5

FAA Knowledge Code: H71

The unequal lift across the rotor disc that occurs in horizontal flight as a result of the difference in velocity of the air over the advancing half of the disc area and the air passing over the retreating half of the disc area is known as

- X A. dissymmetry of lift.
- B. disc loading.
- C. coning.

FAA Question Number: 5.2.4.6

FAA Knowledge Code: H71

The lift differential that exists between the advancing blade and the retreating blade is known as

- A. Coriolis effect.
- B. translational lift.
- X C. dissymmetry of lift.

FAA Question Number: 5.2.4.8

FAA Knowledge Code: H72

When a rotorcraft transitions from straight-and-level flight into a 30° bank while maintaining a constant altitude, the total lift force must

- A. increase and the load factor will decrease.
- X B. increase and the load factor will increase.
- C. remain constant and the load factor will decrease.

FAA Question Number: 5.2.4.9

FAA Knowledge Code: H73

Cyclic control pressure is applied during flight that results in a maximum increase in main rotor blade pitch angle at the "three o'clock" position. Which way will the rotor disc tilt?

- A. Aft.
- B. Left.
- C. Right.

FAA Question Number: 5.2.5.0

FAA Knowledge Code: H73

Cyclic control pressure is applied during flight that results in a maximum decrease in pitch angle of the rotor blades at the "12 o'clock" position. Which way will the rotor disc tilt?

- A. Aft.
- B. Left.
- C. Forward.

FAA Question Number: 5.2.5.3

FAA Knowledge Code: H74

The main rotor blades of a fully-articulated rotor system can

- A. feather independently, but cannot flap or drag.
- B. flap, drag, and feather independently.
- C. flap and feather collectively.

FAA Question Number: 5.2.5.7

FAA Knowledge Code: H74

The main rotor blades of a semirigid rotor system can

- A. flap, drag, and feather independently.
- B. feather independently, but cannot flap or drag.
- C. flap and feather as a unit.

FAA Question Number: 5.2.5.8

FAA Knowledge Code: H77

Rotorcraft climb performance is most adversely affected by

- A. higher than standard temperature and low relative humidity.
- B. lower than standard temperature and high relative humidity.
- C. higher than standard temperature and high relative humidity.

FAA Question Number: 5.2.5.9

FAA Knowledge Code: H77

The most unfavorable combination of conditions for rotorcraft performance is

- A. low density altitude, low gross weight, and calm wind.
- B. high density altitude, high gross weight, and calm wind.
- C. high density altitude, high gross weight, and strong wind.

FAA Question Number: 5.2.6.0

FAA Knowledge Code: H77

How does high density altitude affect rotorcraft performance?

- A. Engine and rotor efficiency is increased.
- B. Engine and rotor efficiency is reduced.
- C. It increases rotor drag, which requires more power for normal flight.

FAA Question Number: 5.6.4.4

FAA Knowledge Code: H130

Figure 37 for this question

(Refer to figure 37.) GIVEN:

WEIGHT MOMENT

Gyroplane basic weight 1,315 150.1 (oil included)

Pilot weight 140 ?

Passenger weight 150 ?

27 gal fuel 162 ?

The CG is located

- A. outside the CG envelope; the maximum gross weight is exceeded.
- B. outside the CG envelope; the maximum gross weight and the gross-weight moment are exceeded.
- X C. within the CG envelope; neither maximum gross weight nor gross-weight moment is exceeded.

FAA Question Number: 5.6.4.5

FAA Knowledge Code: H130

Figure 37 for this question

(Refer to figure 37.)

GIVEN:

WEIGHT MOMENT

Gyroplane basic weight 1,315 154.0 (oil included)

Pilot weight 145 ?

Passenger weight 153 ?

27 gal fuel 162 ?

The CG is located

- A. within the CG envelope; neither maximum gross weight nor gross-weight moment is exceeded.
- B. outside the CG envelope; the maximum gross weight is exceeded.
- X C. outside the CG envelope; but the maximum gross weight is not exceeded.

FAA Question Number: 5.6.7.1

FAA Knowledge Code: H745

During the flare portion of a power-off landing, the rotor RPM tends to

- A. remain constant.
- B. decrease initially.
- X C. increase initially.

FAA Question Number: 5.6.7.2

FAA Knowledge Code: H71

Which would produce the slowest rotor RPM?

- X A. Pushing over after a steep climb.
- B. A vertical descent with power.
- C. A vertical descent without power.

FAA Question Number: 5.7.2.9

FAA Knowledge Code: H743

When conducting a confined area-type operation, the primary purpose of the high reconnaissance is to determine the

- A. power requirements for the approach.
- B. amount of slope in the landing area.
- X C. suitability of the area for landing.

FAA Question Number: 5.7.3.3

FAA Knowledge Code: H767

If ground resonance is experienced during rotor spin-up, what action should you take?

- A. Make a normal takeoff immediately.
- B. Taxi to a smooth area.
- X C. Close the throttle and slowly raise the spin-up lever.

FAA Question Number: 5.7.3.4

FAA Knowledge Code: H762

The principal factor limiting the never-exceed speed (VNE) of a gyroplane is

- X A. lack of sufficient cyclic stick control to compensate for dissymmetry of lift or retreating blade stall, depending on which occurs first.
- B. turbulence and altitude.
- C. blade-tip speed, which must remain below the speed of sound.

FAA Question Number: 5.7.3.5

FAA Knowledge Code: H765

Why should gyroplane operations within the cross-hatched portion of a Height vs. Velocity chart be avoided?

- X A. Sufficient airspeed may not be available to ensure a safe landing in case of an engine failure.
- B. The rotor RPM may build excessively high if it is necessary to flare at such low altitudes.
- C. Turbulence near the surface can dephase the blade dampers causing geometric unbalanced conditions on the rotor system.

FAA Question Number: 5.7.3.6

FAA Knowledge Code: H765

The principal reason the shaded area of a Height vs. Velocity chart should be avoided is

- X A. insufficient airspeed would be available to ensure a safe landing in case of an engine failure.
- B. rotor RPM may decay before ground contact is made if an engine failure should occur.
- C. rotor RPM may build excessively high if it is necessary to flare at such low altitudes.

FAA Question Number: 5.7.3.7

FAA Knowledge Code: H766

During the transition from pre-rotation to flight, all rotor blades change pitch

- A. to the same degree at the same point in the cycle of rotation.
- X B. simultaneously but to different angles of incidence.
- C. simultaneously to the same angle of incidence.

FAA Question Number: 5.7.3.8

FAA Knowledge Code: H766

Select the true statement concerning gyroplane taxi procedures.

- X A. Avoid abrupt control movements when blades are turning.
- B. The cyclic stick should be held slightly aft of neutral at all times.
- C. The cyclic stick should be held in the neutral position at all times.