13 Lecture - PHY101

Important Mcqs

Which of the following statements is true about angular momentum?

A. It is a scalar quantity.

B. It is a vector quantity.

C. It is a measure of an object's rotational inertia.

D. It is the product of an object's mass and velocity.

Answer: B. It is a vector quantity.

Which of the following is an example of conservation of angular momentum?

A. A spinning top eventually comes to a stop.

B. A figure skater spins faster when she pulls her arms in.

C. A car's wheels stop rotating when the brakes are applied.

D. A basketball player's shot is affected by the spin he puts on the ball.

Answer: B. A figure skater spins faster when she pulls her arms in.

Which of the following statements is true about the direction of angular momentum?

A. It is always perpendicular to the plane of rotation.

B. It is always in the same direction as the angular velocity.

C. It can be in any direction relative to the plane of rotation.

D. It depends on the direction of the applied torque.

Answer: C. It can be in any direction relative to the plane of rotation.

Which of the following is a unit of angular momentum?

A. meters per second

B. newtons

C. joules

D. kilograms meters squared per second

Answer: D. kilograms meters squared per second

Which of the following is an example of a system with no net angular momentum?

A. A spinning top

B. The Earth revolving around the Sun

C. A bicycle wheel in motion

D. A figure skater spinning on one leg

Answer: B. The Earth revolves around the Sun

Which of the following is an example of an object with zero angular momentum?

A. A planet orbiting the Sun

B. A ball rolling down a hill

C. A spinning top

D. A car driving on a straight road

Answer: D. A car driving on a straight road

Which of the following statements is true about the conservation of angular momentum?

A. It is only conserved in isolated systems.

B. It is always conserved in any system.

C. It is only conserved in systems with no external torques.

D. It is not a conserved quantity.

Answer: B. It is always conserved in any system.

Which of the following is an example of a system with changing angular momentum?

A. A satellite in circular orbit around the Earth

B. A pendulum swinging back and forth

C. A ball bouncing off a wall

D. A figure skater spinning at a constant rate

Answer: C. A ball bouncing off a wall

Which of the following statements is true about the moment of inertia?

A. It is a measure of an object's mass.

B. It is a measure of an object's resistance to rotational motion.

C. It is the same for all objects.

D. It is always equal to the object's radius.

Answer: B. It is a measure of an object's resistance to rotational motion.

Which of the following is an example of an object with high moment of inertia?

A. A thin hoop

B. A thin rod

C. A solid sphere

D. A hollow sphere

Answer: D. A hollow sphere