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