14 Lecture - PHY101

Important Mcqs

Which of the following is not a condition for a rigid body to be in equilibrium?

A) The net force acting on the body is zero

B) The net torque acting on the body is zero

C) The center of mass of the body is at rest

D) The body is not rotating

Answer: D) The body is not rotating

A uniform rod of length 2 meters is balanced horizontally at its midpoint. What is the net torque acting on the rod?

A) Zero

B) mg

C) 2mg

D) 4mg

Answer: A) Zero

A ladder is leaning against a wall. Which of the following forces contribute to the torque acting on the ladder?

A) The force of gravity on the ladder

B) The force of the wall pushing back on the ladder

C) The normal force acting on the ladder

D) Both A and B

Answer: D) Both A and B

Two forces of equal magnitude and opposite direction act on a rigid body. What is the net torque acting on the body?

A) Zero

B) Equal to the magnitude of the forces

C) Double the magnitude of the forces

D) Cannot be determined without knowing the distance between the forces

Answer: A) Zero

What is the relationship between torque and moment arm?

A) Torque is proportional to moment arm

B) Torque is inversely proportional to moment arm

C) Torque is equal to moment arm squared

D) Torque is equal to moment arm cubed

Answer: A) Torque is proportional to the moment arm

A force of 10 N is applied to a wrench with a moment arm of 0.1 meters. What is the torque produced by the force?

A) 0.1 Nm

B) 1 Nm

C) 10 Nm

D) 100 Nm

Answer: B) 1 Nm

An object is in rotational equilibrium if:

A) The net force acting on it is zero

B) The net torque acting on it is zero

C) The object is at rest

D) The object is not rotating

Answer: B) The net torque acting on it is zero

An object is in translational equilibrium if:

A) The net force acting on it is zero

B) The net torque acting on it is zero

C) The object is at rest

D) The object is not rotating

Answer: A) The net force acting on it is zero

A person is holding a weight in one hand. Which of the following forces is producing torque?

A) The force of gravity on the weight

B) The force of the person's hand on the weight

C) The normal force acting on the weight

D) Both A and B

Answer: B) The force of the person's hand on the weight

Which of the following is a condition for rotational equilibrium?

A) The net force acting on the object is zero

B) The object is at rest

C) The net torque acting on the object is zero

D) The object is not rotating

Answer: C) The net torque acting on the object is zero