

# 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**