Chapters/ Sections will be Covered

Book: Fundamentals of Physics by David Halliday, Jearl Walker, and Robert Resnick

Chapter Title: Center of Mass and Linear Momentum

Sections: Center of Mass
Newton's Second Law for a System of Particles
Linear Momentum
Collision and Impulse
Conservation of Linear Momentum

Sample Quiz Question

Which of the following physical quantities experiences a change in impulse?
a) Velocity direction only
b) Potential energy
c) Mass
d) Momentum

How does increasing the duration of contact in a collision affect the average force?
a) Increases
b) Decreases
c) Remains the same
d) Becomes zero

Sample Quiz Question

What solely influences the motion of a system's center of mass?
a) Internal forces
b) External forces
c) Both internal & external forces
d) Particles' velocity

In an isolated system, what happens to the motion of the center of mass?
a) Remains at rest when particles have velocity
b) Remains at constant velocity when particles have motion
c) Moves with a velocity when particles have motion
d) Accelerates constantly when particles are in motion

Probable Final Questions: Lecture 13

Describe the conditions under which an impulse occurs. Illustrate the impulse-momentum theorem for a specific event.

Clarify the concept of linear momentum conservation when no external force acts on a system.