

## Multiple Choice

### 8.1 Linear Momentum, Force, and Impulse 21.

What kind of quantity is momentum?

- a. Scalar
- b. Vector

22.

When does the net force on an object increase?

- a. When  $\Delta \mathbf{p}$  decreases
- b. When  $\Delta t$  increases
- c. When  $\Delta t$  decreases

23.

In the equation  $\Delta \mathbf{p} = m(\mathbf{v}_f - \mathbf{v}_i)$ , which quantity is considered to be constant?

- a. Initial velocity
- b. Final velocity
- c. Mass
- d. Momentum

24.

For how long should a force of  $50\text{ N}$  be applied to change the momentum of an object by  $12\text{ kg} \cdot \text{m/s}$ ?

- a.  $0.24\text{ s}$
- b.  $4.15\text{ s}$
- c.  $62\text{ s}$
- d.  $600\text{ s}$

### 8.2 Conservation of Momentum 25.

In the equation  $\mathbf{L} = I$ , what is  $I$ ?

- a. Linear momentum
- b. Angular momentum
- c. Torque
- d. Moment of inertia

26.

Give an example of an isolated system.

- a. A cyclist moving along a rough road
- b. A figure skater gliding in a straight line on an ice rink
- c. A baseball player hitting a home run
- d. A man drawing water from a well

### 8.3 Elastic and Inelastic Collisions 27.

In which type of collision is kinetic energy conserved?

- a. Elastic
- b. Inelastic

28.

In physics, what are structureless particles that cannot rotate or spin called?

- a. Elastic particles
- b. Point masses
- c. Rigid masses

29.

Two objects having equal masses and velocities collide with each other and come to a rest. What type of a collision is this and why?

- a. Elastic collision, because internal kinetic energy is conserved
- b. Inelastic collision, because internal kinetic energy is not conserved
- c. Elastic collision, because internal kinetic energy is not conserved
- d. Inelastic collision, because internal kinetic energy is conserved

30.

Two objects having equal masses and velocities collide with each other and come to a rest. Is momentum conserved in this case?

- a. Yes
- b. No