Physics
Projectiles, Form: A

Name: _____
Date: _____
Period: _____
Primary Peer Reviewer: _____

+1	0	-1	Σ

Section 1. Multiple Choice

1. While going on vacation, a child leaves his ball on the floor of an airplane. When the plane accelerates forward, the ball rolls to the back of the plane. What happens when the plane stops?
   (a) It is thrown harder against the back of the plane.
   (b) It rolls to the front of the plane.
   (c) The balls inertia keeps it against the back of the plane.
   (d) The ball is not affected by stopping.
   (e) It stays in place.
2. A net external force of 50 Newtons acts on a 10-kilogram object. The object must be-
   (a) accelerating
   (b) moving at a constant speed
   (c) at rest
   (d) moving in the negative direction
   (e) it is impossible to tell
3. Which of the following statements is correct?
   (a) Mass and weight are the same thing, but measured in different units.
   (b) When an object is falling freely, it is massless.
   (c) If the mass of an object is doubled, its weight is tripled.
   (d) The mass of an object is independent of the force of gravity acting on an object.
   (e) Objects in space have weight but no mass.
4. Which of the following forces is most often responsible for causing objects to slow down?
   (a) Gravity
   (b) Friction
   (c) The Normal Force
   (d) Centripetal Force
   (e) None of the above

5. A force of 26 N is needed to overcome a frictional force of 5 N to accelerate a 3 kg mass across a floor. What is the acceleration of the mass?

   (a) 4 m/s^2

   (b) 5 m/s^2

   (c) 7 m/s^2

   (d) 20 m/s^2

   (e) 60 m/s^2

6. How much force is required to keep a space ship moving at constant velocity in deep space, very far from all stars and planets?

   (a) equal to the force required to stop it.

   (b) equal to its weight.

   (c) zero.

   (d) dependent on how fast the ship is moving.

   (e) dependent on the particular inertial reference frame to which the force is referenced.

7. Billy-Bob is standing in the middle of a circular, frozen lake of radius r=10m. The surface of the lake is perfectly frictionless. He has 3 meters of rope. What is the best way for him to reach the edge of the lake?

   (a) Propel himself by wiggling the rope back and forth, similar to the motion of a snake.

   (b) Throw the rope opposite to the direction he wants to travel.

   (c) Crawl along the surface of the lake.

   (d) Walk carefully to the edge of the lake.

   (e) Attempt to hook the rope around a tree on the shore, then use the rope to pull himself to the shore

8. A Large truck collides with a bicyclist. During the collision, which of the following forces is bigger?

   (a) The force the truck exerts on the bicyclist.

   (b) The force the bicyclist exerts on the truck

   (c) Both forces are equal.

   (d) It is impossible to tell without knowing the velocities of the truck and the bicyclist.

   (e) None of the above.

Answer Key for Exam A

Section 1. Multiple Choice

1. While going on vacation, a child leaves his ball on the floor of an airplane. When the plane accelerates forward, the ball rolls to the back of the plane. What happens when the plane stops?
   (a) It is thrown harder against the back of the plane.
   (b) It rolls to the front of the plane.
   (c) The balls inertia keeps it against the back of the plane.
   (d) The ball is not affected by stopping.
   (e) It stays in place.
2. A net external force of 50 Newtons acts on a 10-kilogram object. The object must be-
   (a) accelerating
   (b) moving at a constant speed
   (c) at rest
   (d) moving in the negative direction
   (e) it is impossible to tell
3. Which of the following statements is correct?
   (a) Mass and weight are the same thing, but measured in different units.
   (b) When an object is falling freely, it is massless.
   (c) If the mass of an object is doubled, its weight is tripled.
   (d) The mass of an object is independent of the force of gravity acting on an object.
   (e) Objects in space have weight but no mass.
4. Which of the following forces is most often responsible for causing objects to slow down?
   (a) Gravity
   (b) Friction
   (c) The Normal Force
   (d) Centripetal Force
   (e) None of the above
5. A force of 26 N is needed to overcome a frictional force of 5 N to accelerate a 3 kg mass across a floor. What is the acceleration of the mass?
   (a) 4 m/s^2
   (b) 5 m/s^2
   (c) 7 m/s^2
   (d) 20 m/s^2
   (e) 60 m/s^2

6. How much force is required to keep a space ship moving at constant velocity in deep space, very far from all stars and planets?

   (a) equal to the force required to stop it.

   (b) equal to its weight.

   (c) zero.

   (d) dependent on how fast the ship is moving.

   (e) dependent on the particular inertial reference frame to which the force is referenced.

7. Billy-Bob is standing in the middle of a circular, frozen lake of radius r=10m. The surface of the lake is perfectly frictionless. He has 3 meters of rope. What is the best way for him to reach the edge of the lake?

   (a) Propel himself by wiggling the rope back and forth, similar to the motion of a snake.

   (b) Throw the rope opposite to the direction he wants to travel.

   (c) Crawl along the surface of the lake.

   (d) Walk carefully to the edge of the lake.

   (e) Attempt to hook the rope around a tree on the shore, then use the rope to pull himself to the shore

8. A Large truck collides with a bicyclist. During the collision, which of the following forces is bigger?

   (a) The force the truck exerts on the bicyclist.

   (b) The force the bicyclist exerts on the truck

   (c) Both forces are equal.

   (d) It is impossible to tell without knowing the velocities of the truck and the bicyclist.

   (e) None of the above.