

Quiz chapter 15



**ASSIGN
BUSTER**

Question 1: Suppose you walk across a room carrying a bucket of water in your right hand. To keep the water from sloshing out, you walk at a constant speed, making sure the bucket is kept at the same height above the ground.

Which statement is true?

- a) You exert a force on the bucket and do work on the bucket as you carry it.
- b) You exert a force on the bucket but do no work on the bucket.
- c) You don't exert a force on the bucket and you do no work on it.

Answers: b Question 2:

TRUE or FALSE:

If an object moves from one point in space to another, then work has been done on the object.

- a) TRUE
- b) FALSE Answers: b

Question 3: Suppose you push on a heavy table and the table doesn't move.

The work that you do is

- a) positive.
- b) zero.
- c) negative.

Answers: b

Question 4: A hockey puck slides across the ice and eventually comes to a stop.

Which statement is true?

- a) The work done by gravity is zero.
- b) The work done by gravity is equal to the gravitational force times the distance the puck slides.
- c) The work done by gravity cannot be calculated.

Answers: A

Question 5: You lift a book bag straight upwards off the floor.

Which statement is correct?

- a) You do the same work whether you lift the book bag quickly or slowly.
- b) You exert the same power whether you lift the book bag quickly or slowly.
- c) The work you do is zero, making the power also zero.

Answers: A

Question 6: Any object that has kinetic energy must be

- a) moving.
- b) falling.
- c) high above the ground.
- d) at rest.

Answers: A

Question 7: A book is at rest on a tabletop. One student calculates the potential energy as 15 J. Another student calculates the potential energy as 20 J.

Which statement is correct?

- a) One or both of the students must have calculated the potential energy incorrectly.
- b) Both answers could be correct.
- c) Both answers are wrong because they use the wrong units.

Answers: b

Question 8:

TRUE or FALSE:

An object that moves faster has greater potential energy.

- a) TRUE
- b) FALSE

Answers: b

Question 9: A ball is thrown straight up into the air (with no air resistance).

Where is the ball's potential energy the greatest?

- a) When it is first released
- b) Halfway up
- c) At its highest point

Answers: c

Question 10: A softball player hits a "pop up" (where the ball is hit high above the infield).

As the ball rises, we know that

- a) the kinetic energy increases as the potential energy decreases.
- b) the kinetic energy decreases as the potential energy increases.
- c) the kinetic energy and potential energy both increase.
- d) the kinetic energy and potential energy both decrease.

Answers: b

Question 11:

TRUE or FALSE

A small fly can have a bigger momentum than a large truck

- a) TRUE
- b) FALSE

Answers: a

Question 12: You and a friend stand on ice skates facing each other in the middle of a frozen pond.

If you throw a basketball to your friend who happens to weigh less than you do, what happens?

- a) You and your friend both move away from each other at the same speed.
- b) Your friend moves away from you at a faster speed than you have.
- c) Your friend moves away from you at a slower speed than you have.
- d) You don't move but your friend moves away at a very fast speed.

Answers: b

Question 13: A tetherball is made by attaching one end of a rope to a ball and the other to a pole.

After you hit the ball, the rope wraps around the pole as the ball circles it with a shorter radius each time it goes around. Which of the following statements is correct about the ball after it is hit?

- a) Both the angular momentum and the speed of the ball increase.
- b) Both the angular momentum and the speed of the ball decrease.
- c) The angular momentum of the ball stays constant while the speed of the ball increases.
- d) The angular momentum of the ball stays constant while the speed of the ball decreases.

Answers: c

Question 14: As a tornado becomes more narrow, the rotational speed

- a) decreases.
- b) increases.
- c) stays the same.

Answers: b

Question 15: You see a rocket fly by with a speed that you measure to be close to the speed of light.

- a) The person standing on the ground sees the rocket looking “compressed” along the direction of motion, while the person in the rocket sees the person on the ground looking “stretched.”

- b) The person standing on the ground sees the rocket looking “ compressed” along the direction of motion, and the person in the rocket sees the person on the ground also looking “ compressed. ”
- c) The person standing on the ground sees the rocket looking “ stretched” along the direction of motion, while the person in the rocket sees the person on the ground looking “ compressed. ”
- d) The person standing on the ground sees the rocket looking “ stretched” along the direction of motion, and the person in the rocket sees the person on the ground also looking “ stretched. ”

Answers: b