PHYSICAL SCIENCE
982-021-06 (982-020-03) Section C2
Winter 2006

Quiz #3
May 1, 2006

Name _____

ID Number _____

FOR THIS QUIZ, PLEASE USE $10\ m/s^2$ AS THE VALUE FOR ACCELERATION DUE TO GRAVITY ON EARTH!

MULTIPLE CHOICE: [2 MARKS EACH]

5. A ball tossed vertically upward rises, reaches its highest point, and then falls back to its starting point. During this time the acceleration of the ball is always

a) directed downward.
b) in the direction of motion.
c) directed upward.
d) opposite its velocity.

6. An apple weighs 1 N. The magnitude of net force on the apple when it is in free-fall is

a) 10 N.
b) 0.1 N.
c) 0 N.
d) 1 N.
e) none of these

7. A girl pulls on a 10-kg wagon with a constant net force of 30 N. What is the wagon's acceleration in meters per second per second?

a) 0.3
b) 3.0
c) 300
d) 30
e) 10

8. An object following a straight-line path at constant speed

a) has no forces acting on it.
b) must be moving in a vacuum or in the absence of air drag.
c) has zero acceleration.
d) has a net force acting upon it in the direction of motion.
e) none of these

9. An archer shoots an arrow. Consider the action force to be the bowstring against the arrow. The reaction to this force is the

a) air resistance against the bow.
b) grip of the archer's hand on the bow.
c) friction of the ground against the archer's feet.
d) weight of the arrow.
e) arrow's push against the bowstring.

10. If the mass of an object does not change, a constant net force on the object produces constant

a) acceleration.
b) velocity.
c) both of these
d) none of these

11. The two measurements necessary for calculating average speed are

a) distance and acceleration.
b) velocity and time.
c) acceleration and time.
d) velocity and distance.
e) distance and time.

12. An object is pulled northward with a force of 10 N and southward with a force of 15 N. The net force on the object is

a) 5 N.
b) 5 N northward.
c) 5 N southward.
d) none of these

13. A 10-kg brick and a 1-kg book are dropped in a vacuum. The force of gravity on the 10-kg brick is

a) 10 times as much as the force on the 1-kg book.
b) the same as the force on the 1-kg book.
c) zero.

SHORT ANSWER [4 MARKS; EXPLAIN YOUR ANSWER IN DETAIL]:

1. In the absence of air resistance, why will a heavy rock and a light pebble accelerate equally when dropped?

# PHYSICAL SCIENCE FORMULA SHEET