PH1 Ch3-4 Practice

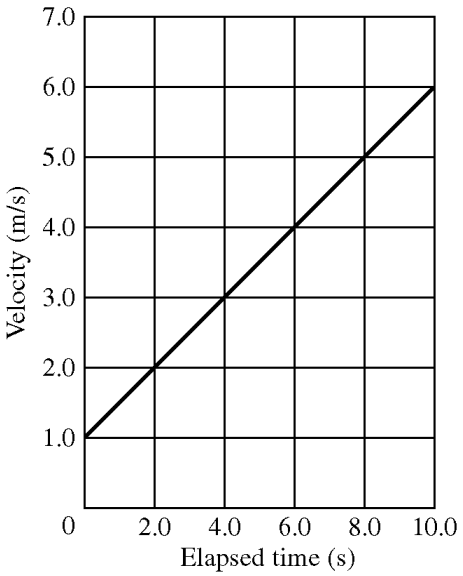
Multiple Choice
Identify the choice that best completes the statement or answers the question.

____ 1. A ball is thrown straight up. At the top of its path its instantaneous speed is
a. 0 m/s.
b. about 5 m/s.
c. about 10 m/s.
d. about 20 m/s.
e. about 50 m/s.

____ 2. A ball is thrown straight up. At the top of its path its acceleration is
a. 0 m/s^2.
b. about 5 m/s^2.
c. about 10 m/s^2.
d. about 20 m/s^2.
e. about 50 m/s^2.

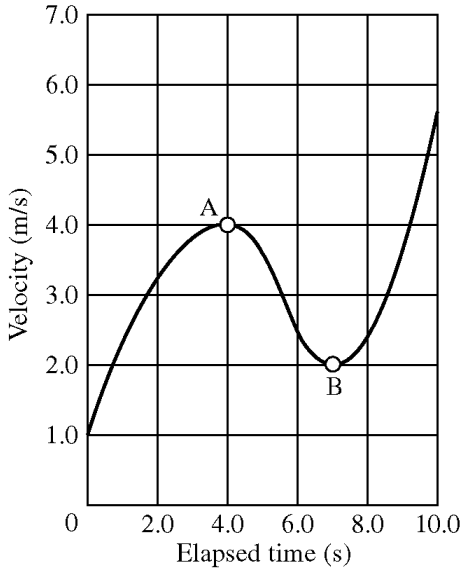
____ 3. Which of the following is the expression for average velocity?
a. $v_{avg} = \frac{\Delta x}{\Delta t}$
b. $v_{avg} = \frac{\Delta t}{\Delta x}$
c. $v_{avg} = \Delta x \bullet \Delta t$
d. $v_{avg} = \frac{v_i + v_f}{2}$

____ 4. When velocity is positive and acceleration is negative, what happens to the object's motion?
a. The object slows down.
b. The object speeds up.
c. Nothing happens to the object.
d. The object remains at rest.



____ 5. What does the graph above illustrate about acceleration?
a. The acceleration is constant.
b. The acceleration is zero.
c. The acceleration decreases.

d. There is not enough information to answer.



____ 6. What does the graph above illustrate about acceleration?
a. The acceleration varies.
b. The acceleration is zero.
c. The acceleration is constant.
d. The acceleration increases then becomes constant.

____ 7. A tourist accidentally drops a camera from a 40.0 m high bridge. If $g = 9.81$ m/s^2 and air resistance is disregarded, what is the speed of the camera as it hits the water?
a. 28.0 m/s
b. 31.0 m/s
c. 56.0 m/s
d. 784 m/s

____ 8. Equilibrium occurs when
a. all the forces acting on an object are balanced.
b. the sum of the $+x$ forces on an object equals the sum of the $-x$ forces.
c. the net force on the object is zero.
d. the sum of the upward forces equals the sum of the downward forces.
e. all of the above

____ 9. A girl pulls on a 10-kg wagon with a constant force of 20 N. What is the wagon's acceleration?
a. 0.5 m/s^2
b. 2 m/s^2
c. 10 m/s^2
d. 20 m/s^2
e. 200 m/s^2

____ 10. Suppose a particle is accelerated through space by a constant 10-N force. Suddenly the particle encounters a second force of 10-N in a direction opposite to that of the first force. The particle
a. is brought to a rapid halt.
b. theoretically accelerates to speeds approaching the speed of light.
c. continues at the speed it had when it encountered the second force.
d. gradually decelerates to a halt.
e. none of the above

____ 11. Forces always occur
   a. as single quantities.
   b. by themselves.
   c. in pairs.
   d. in triplets.

Problem

12. You push with 27 N on a 10-kg chest, and there is a 7-N force of friction. How fast will the chest accelerate?

13. A certain unbalanced force gives a 20-kg object an acceleration of 2.0 m/s^2. What acceleration would the same force give a 30-kg object?

14. Suppose that you exert 300 N horizontally on a 50-kg crate on a factory floor, where friction between the crate and the floor is 100 N. What is the acceleration of the crate?

15. A fighter punches a sheet of paper in midair, and brings it from rest up to a speed of 40 m/s in 0.08 s. What is the force of impact on the paper if the mass of the paper is 0.01 kg?

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Answer Section

MULTIPLE CHOICE

1. ANS: A PTS: 1 DIF: 2 REF: p. 18 | p. 19
   OBJ: 2.5 STA: SC.C.1.4
2. ANS: C PTS: 1 DIF: 3 REF: p. 18
   OBJ: 2.5 STA: SC.C.1.4
3. ANS: A PTS: 1 DIF: I OBJ: 2-1.1
4. ANS: A PTS: 1 DIF: II OBJ: 2-2.1
5. ANS: A PTS: 1 DIF: II OBJ: 2-2.2
6. ANS: A PTS: 1 DIF: II OBJ: 2-2.2
7. ANS: A PTS: 1 DIF: IIIB OBJ: 2-3.2
8. ANS: E PTS: 1 DIF: 2 REF: p. 51 | p. 52
   OBJ: 4.7 STA: SC.C.2.4.1
9. ANS: B PTS: 1 DIF: 2 REF: p. 62
   OBJ: 5.3 STA: SC.C.2.4.1
10. ANS: C PTS: 1 DIF: 3 REF: p. 60 | p. 61
    OBJ: 5.3 STA: SC.C.2.4.1
11. ANS: C PTS: 1 DIF: 1 REF: p. 75
    OBJ: 6.2 STA: SC.C.2.4.6

PROBLEM

12. ANS:
    $2\ m/s^2$

    PTS: 1 DIF: 3 REF: p. 62 OBJ: 5.3
    STA: SC.C.2.4.1
13. ANS:
    $1.3\ m/s^2$

    PTS: 1 DIF: 3 REF: p. 62 OBJ: 5.3
    STA: SC.C.2.4.1
14. ANS:
    $4\ m/s^2$

    PTS: 1 DIF: 3 REF: p. 68 OBJ: 5.7
    STA: SC.C.2.4
15. ANS:
    5.0 N

    PTS: 1 DIF: 3 REF: p. 77 OBJ: 6.4
    STA: SC.C.2.4.6