Chapter 3 practice

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

1) A mosquito flying at 3 m/s that encounters a breeze blowing at 3 m/s in the same direction has a speed of 1) _____
A) 0 m/s. B) 3 m/s. C) 4 m/s. D) 6 m/s.

2) A mosquito flying at 3 m/s that encounters a breeze blowing at 3 m/s in the opposite direction has a speed of 2) _____
A) 0 m/s. B) 3 m/s. C) 4 m/s. D) 6 m/s.

3) Katelyn runs along the aisle of a train that moves at 8 m/s. Her speed relative to the floor is 3 m/s. Her speed relative to an observer at rest on the ground is 3) _____
A) 5 m/s.
B) 11 m/s.
C) either depending on her running direction
D) none of the above

4) When you walk at an average speed of 4 m/s, in 5 s you'll cover a distance of 4) _____
A) 2 m. B) 10 m. C) 15 m. D) 20 m.

5) A vehicle undergoes acceleration when it 5) _____
A) gains speed. B) loses speed.
C) changes its direction. D) all of the above

6) While a car travels around a circular track at a constant speed, its 6) _____
A) acceleration is zero. B) velocity is zero.
C) inertia is zero. D) none of the above

7) If a car increases its velocity from zero to 60 m/s in 10 seconds, its acceleration is 7) _____
A) 3 m/s^2. B) 6 m/s^2. C) 60 m/s^2. D) 600 m/s^2.

8) An object covers a distance of 8 meters in the first second of travel, another 8 meters during the next second, and 8 meters again during the third second. Its acceleration is 8) _____
A) 0 m/s^2. B) 5 m/s^2. C) 8 m/s^2. D) 24 m/s^2.

9) If an object moves with constant acceleration, its velocity must 9) _____
A) be constant also.
B) change by the same amount each second.
C) change by varying amounts depending on its speed.
D) always decrease.

10) 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 10) _____
A) in the direction of motion.
B) opposite its velocity.
C) directed upward.
D) directed downward.
E) none of the above

11) A car's speed 3 seconds after accelerating from rest at 2 m/s^2 is 11) _____
A) 2 m/s. B) 3 m/s. C) 4 m/s. D) 6 m/s.

12) The time it takes a car to attain a speed of 30 m/s when accelerating from rest at 2 m/s^2 is 12) _____
A) 2 s.
B) 15 s.
C) 30 s.
D) 60 s.
E) none of the above

13) The accelerations possible for a ball on an inclined plane 13) _____
A) range from zero to g.
B) range from g to infinity.
C) have no limit.

14) While an iron block near the Earth's surface is in free fall, it undergoes an increase in 14) _____
A) speed. B) acceleration.
C) both of these D) neither of these

15) An apple falls from a tree and hits the ground 5 meters below with a speed of about 15) _____
A) 5 m/s.
B) 10 m/s.
C) 15 m/s.
D) 20 m/s.
E) not enough information

16) An object at rest near the surface of a distant planet starts to fall freely. If the acceleration there is twice that of the Earth, its speed one second later would be 16) _____
A) 10 m/s. B) 20 m/s. C) 30 m/s. D) 40 m/s.

17) A ball is thrown upwards and returns to the same location. Compared with its initial speed its speed when it returns is about 17) _____
A) half as much. B) the same.
C) twice as much. D) four times as much.

18) At one instant an object in free fall is moving downward at 50 m/s. One second later its speed is 18) _____
A) 25 m/s. B) 50 m/s. C) 55 m/s. D) 60 m/s. E) 100 m/s.

19) If you throw a ball straight downward (in the absence of air resistance), after leaving your hand its acceleration is 19) _____
A) less than 10 m/s^2. B) 10 m/s^2. C) greater than 10 m/s^2.

20) Neglecting air resistance, how fast must you toss a ball straight up in order for it to take 6 seconds to return to its initial level? 20) _____
A) 5 m/s
B) 10 m/s
C) 20 m/s
D) 30 m/s
E) more than 30 m/s

21) Neglecting air resistance, a ball projected straight upward so it remains in the air for 10 seconds needs an initial speed of 21) _____

A) 50 m/s. B) 60 m/s. C) 80 m/s. D) 100 m/s. E) 110 m/s.

22) A pot that falls from a ledge and hits the ground 45 m below hits the ground at 22) _____

A) 30 m/s. B) 60 m/s.
C) 120 m/s. D) more than 120 m/s.

23) Which of the following is not a vector quantity? 23) _____

A) velocity
B) speed
C) acceleration
D) all are vector quantities
E) none are vector quantities.

24) A humming bird flying at 4 km/h that gets caught in a 3-km/h crosswind has a resultant speed of about 24) _____

A) 3 km/h. B) 4 km/h.
C) 5 km/h. D) more than 5 km/h.

25) An 80-km/h airplane caught in a 60-km/h crosswind has a resultant speed of 25) _____

A) 60 km/h. B) 80 km/h. C) 100 km/h. D) 141 km/h.

Answer Key
Testname: CHAPTER 3 PRACTICE

1) D
2) A
3) C
4) D
5) D
6) D
7) B
8) A
9) B
10) D
11) D
12) B
13) A
14) A
15) B
16) B
17) B
18) D
19) B
20) D
21) A
22) A
23) B
24) C
25) C