

University of Imam Muhammad

College of Science
H.W



General Physics 101
(1435-1436)

Student Name	Student ID	Section

question	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
answer															

1- A car travels 40 kilometers at an average speed of 80km/h and then travels 40 kilometers at an average speed of 40km/h. The average speed of the car for this 80-km trip is:

- a. 40km/h
- b. 45km/h
- c. 48km/h
- d. 53km/h

2- The coordinate of a particle in meters is given by $x(t) = 16t - 3.0t^3$, where the time t is in seconds. The particle is momentarily at rest at $t =$

- a. 0.75 s
- b. 1.3 s
- c. 5.3 s
- d. 7.3 s

3- Each of four particles move along an x axis. Their coordinates (in meters) as functions of time (in seconds) are given by

particle 1: $x(t) = 3.5 - 2.7t^3$

particle 2: $x(t) = 3.5 + 2.7t^3$

particle 3: $x(t) = 3.5 + 2.7t^2$

particle 4: $x(t) = 3.5 - 3.4t - 2.7t^2$

Which of these particles have constant acceleration?

- a. All four
- b. Only 1 and 2
- c. Only 2 and 3
- d. Only 3 and 4

4- Each of four particles move along an x axis. Their coordinates (in meters) as functions of time (in seconds) are given by

particle 1: $x(t) = 3.5 - 2.7t^3$

particle 2: $x(t) = 3.5 + 2.7t^3$

particle 3: $x(t) = 3.5 + 2.7t^2$

particle 4: $x(t) = 3.5 - 3.4t - 2.7t^2$

Which of these particles is speeding up for $t > 0$?

- a. All four
- b. Only 1
- c. Only 2 and 3
- d. Only 2, 3, and 4

5- The coordinate of an object is given as a function of time by $x = 7t - 3t^2$, where x is in meters and t is in seconds. Its average velocity over the interval from $t = 0$ to $t = 4$ s is:

- a. 5m/s
- b. -5m/s
- c. 11m/s
- d. -11m/s

6- The coordinate of an object is given as a function of time by $x = 4t^2 - 3t^3$, where x is in meters and t is in seconds. Its average acceleration over the interval from $t = 0$ to $t = 2$ s is:

- a. -4m/s^2
- b. 4m/s^2
- c. -10m/s^2
- d. 10m/s^2

7- The position y of a particle thrown up along the y axis depends on the time t according to the equation $y = at - bt^2$. If its velocity 4.2 m/s at $t=1$ s , the magnitude of the constant a and b are respectively :

- a. $a = 14$, $b = 4.9$
- b. $a = 5.2$, $b = 15$
- c. $a = 5.6$, $b = 9.8$
- d. $a = 9.8$, $b = 6.8$

8- At time $t = 0$ a car has a velocity of 16 m/s. It slows down with a de-acceleration given by $0.50t$, in m/s^2 for t in seconds. It stops at $t =$

- a. 64 s
- b. 32 s
- c. 5.7 s
- d. 8.0 s

9- Starting at time $t = 0$, an object moves along a straight line. Its coordinate in meters is given by $x(t) = 75t - 1.0t^3$, where t is in seconds. When it momentarily stops its acceleration is:

- a. 0
- b. -73 m/s^2
- c. -30 m/s^2
- d. -9.8 m/s^2

10- A baseball is thrown vertically into the air. The acceleration of the ball at its highest point is:

- a. Zero
- b. g , down
- c. g , up
- d. $2g$, down

11- Which one of the following statements is correct for an object released from rest?

- a. The average velocity during the first second of time is 4.9 m/s
- b. During each second the object falls 9.8 m
- c. The acceleration changes by 9.8 m/s^2 every second
- d. The object falls 9.8 m during the first second of time

12- An object is thrown straight up from ground level with a speed of 50 m/s . If $g = 10 \text{ m/s}^2$ its distance above ground level 1.0 s later is:

- a. 40 m
- b. 45 m
- c. 50 m
- d. 55 m

13- An object is thrown straight up from ground level with a speed of 50 m/s . If $g = 10 \text{ m/s}^2$ its distance above ground level at a maximum height is:

- a. 125 m
- b. 270 m
- c. 330 m
- d. 480 m

14- How far does an object fall during the second second of its fall?

- a. 4.9 m
- b. 9.8 m
- c. 15 m
- d. 19.6 m

15- An object dropped from the window of a tall building hits the ground in 12.0 s . If its acceleration is 9.80 m/s^2 , the height of the window above the ground is:

- a. 29.4 m
- b. 58.8 m
- c. 118 m
- d. 705.6 m

Solution

Best wishes

T. Merfat Al-Zumia