Physicsaholics

DPP – 1 (Kinematics)

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Q 1. A Body moves 6 m north. 8 m east and 10m vertically upwards, what is its resultant displacement from initial position:

(a) $10\sqrt{2}$ m (b) 10 m (c) $\frac{10}{\sqrt{2}}$ m (d) 20 m

Q 2. An athlete completes one round of a circular track of radius R in 40 sec with uniform speed. What will be his displacement at the end of 2 min. 30 sec?

(a) zero (b) $\sqrt{2}$R (c) $\frac{5}{2}\pi R$ (d) $\frac{15}{2}\pi R$

Q 3. A car covers the first half of the distance between two places at 40 kmph and the other half at 60 kmph. The average speed of the car is:

(a) 40 kmph (b) 48 kmph
(c) 50 kmph (d) 60 kmph

Q 4. A particle is constrained to move on a straight line path. It returns to the starting point after 10 sec. The total distance covered by the particle during this time is 30 m. Which of the following statements about the motion of the particle is false?

(a) Displacement of the particle is zero
(b) Average speed of the particle is 3 m/s
(c) Displacement of the particle is 30 m
(d) Average velocity of the particle is zero.

Q 5. A particle moves along a semicircle of radius 10m from A to B in 5 seconds. The average velocity of the particle is:

(a) $2\pi\ m/s^{-1}$ (b) $4\pi\ m/s^{-1}$
(c) $2\ m/s^{-1}$ (d) $4\ m/s^{-1}$

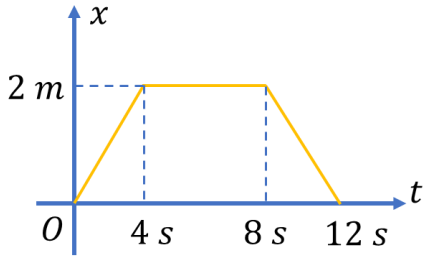
Q 6. A passenger travels along a straight line with velocity V_1 for first half time and with velocity V_2 for next half time, then the mean speed v is given by –

(a) $v = \frac{v_1+v_2}{2}$ (b) $v = \sqrt{v_1 v_2}$
(c) $v = \sqrt{\frac{v_2}{v_1}}$ (d) $\frac{2}{v} = \frac{1}{v_1} + \frac{1}{v_2}$

Q 7. A particle's position as a function of time is described as $y = 2t^2 + 3t + 4$. What is the average velocity of the particle from $t = 0$ to $t = 3$ sec?

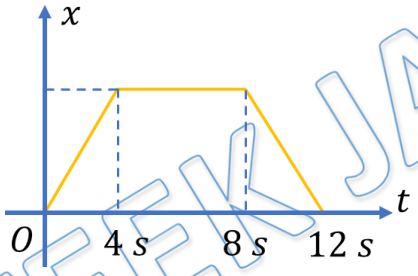
(a) 3 m/s (b) 6 m/s
(c) 9 m/s (d) 12 m/s

Q 8. Position-time graph of a particle is shown below. What is the average velocity of the particle between the times $t = 0\ s$ to $t = 12\ s$?



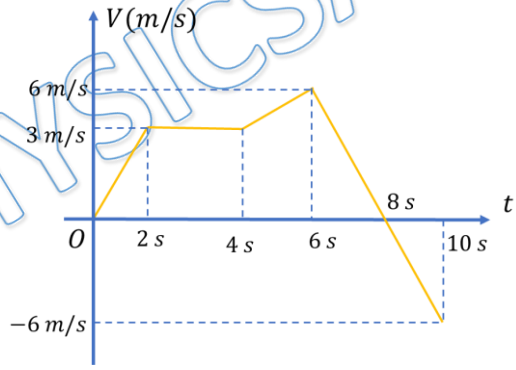
(a) 1.33 m/s
(b) zero
(c) 12 m/s
(d) -01.33 m/s

Q 9. Position-time graph of a particle is shown below. What is the average speed of the particle between the times $t = 8\ s$ to $t = 12\ s$?



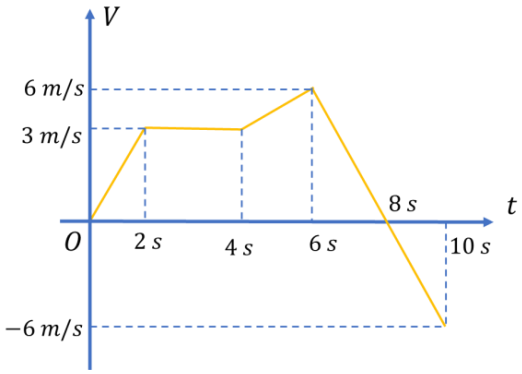
(a) 0.5 m/s
(b) -0.5 m/s
(c) zero
(d) 2 m/s

Q 10. Velocity-time graph of a particle is shown below. What is the average velocity of the particle between the times $t = 2\ s$ to $t = 6\ s$?



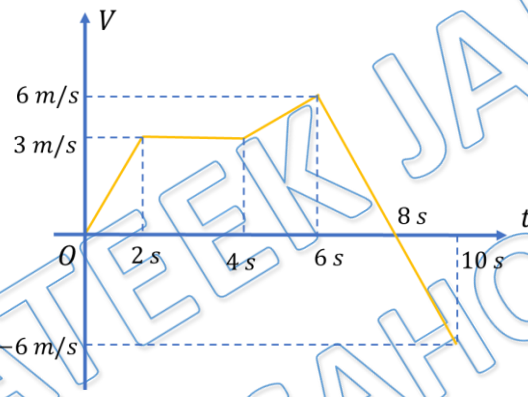
(a) 0.5 m/s
(b) 3.5 m/s
(c) -3.5 m/s
(d) 5 m/s

Q 11. Velocity-time graph of a particle is shown below. What is the average speed of the particle between the times $t = 0\ s$ to $t = 10\ s$?



(a) 3.5 m/s (b) -3.5 m/s
(c) 3 (d) -3 m/s

Q 12. Velocity-time graph of a particle is shown below. What is the instantaneous velocity of the particle at $= 5\ s$?



(a) 4 m/s (b) -4 m/s
(c) -4.5 m/s (d) 4.5 m/s

Answer Key

Q.1) a	**Q.2) b**	**Q.3) b**	**Q.4) c**	**Q.5) d**
Q.6) a	**Q.7) c**	**Q.8) b**	**Q.9) a**	**Q.10) b**
Q.11) c	**Q.12) d**			