

Q1. A car starts from rest and reaches a speed of 80km/h in 16s. The average acceleration of the car is:

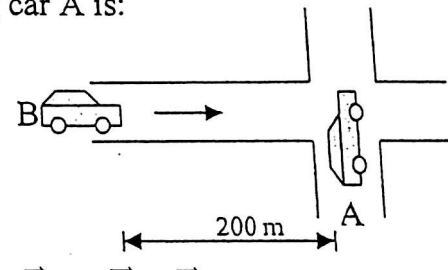
- a)  $0.7 \text{ m/s}^2$    b)  $1.4 \text{ m/s}^2$    c)  $2.7 \text{ m/s}^2$    d)  $3.5 \text{ m/s}^2$    e)  $5 \text{ m/s}^2$

Q2. A particle is noticed to move along the positive x-axis with a constant velocity of 200cm/s. At time  $t=1\text{s}$  its position is 2m. The position of the particle at time  $t=6\text{s}$  is:

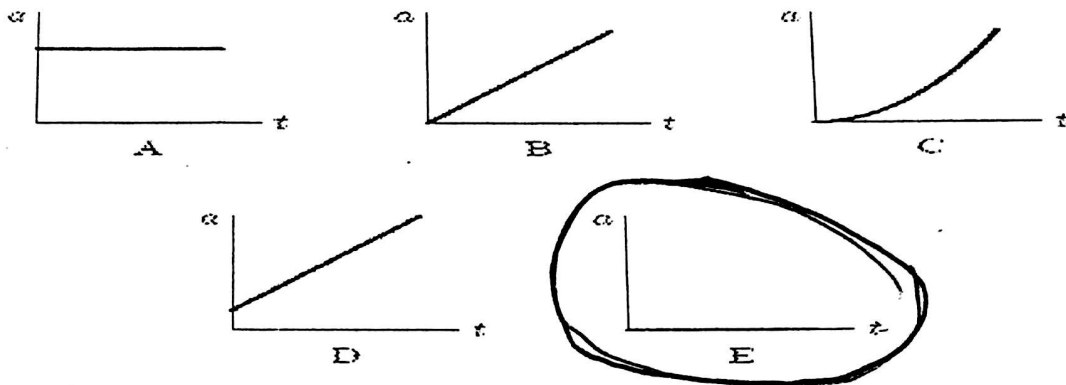
- a) 4 m   b) 8 m   c) 10 m   d) 12 m   e) 16 m

Q3. A car A is crossing the road as shown in the figure. The car stops in the middle of the cross road, when another car B is 200 m away. If the initial speed of car B is 60m/s, the minimum braking acceleration (in  $\text{m/s}^2$ ) needed to come to stop just before hitting car A is:

- a)  $-9 \text{ ms}^{-2}$    b)  $10 \text{ ms}^{-2}$    c)  $-7.5 \text{ ms}^{-2}$    d)  $6.9 \text{ ms}^{-2}$    e)  $-8.3 \text{ ms}^{-2}$



Q1. Which of the following five acceleration (a) versus time (t) graphs is correct for an object moving in a straight line at a constant velocity?



Q2. 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) 53km/h      b) 45km/h      c) 48km/h      d) 40km/h      e) 80km/h

Q3. An automobile moving along a straight track changes its velocity uniformly from 40 m/s to 80 m/s in a distance of 200 m. The (constant) acceleration of the vehicle during this time is :

- a) 8.0 m/s<sup>2</sup>      b) 9.6 m/s<sup>2</sup>      c) 0.20 m/s<sup>2</sup>      d) 6.9 m/s<sup>2</sup>      e) 12 m/s<sup>2</sup>

Q1. The position of a particle moving along the x axis is given by  $x = (21 + 22t - 6.0t^2)$  m, where  $t$  is in s. The average velocity during the time interval  $t = 1.0$  s to  $t = 3.0$  s is:

- a)  $-6.0$  m/s      b)  $-4.0$  m/s      c)  $-2.0$  m/s      d)  $-8.0$  m/s      e)  $8.0$  m/s

Q2. Neglecting air resistance, a stone is thrown vertically upward from the ground with an initial speed of  $35$  m/s. The maximum height will be reached by the stone is :

- a)  $98$  m      b)  $41$  m      c)  $18$  m      d)  $160$  m      e)  $62.5$  m

Q3. A bullet is fired through a board,  $0.14$  m thick, with its line of motion perpendicular to the face of the board. If it enters with a speed of  $450$  m/s and emerges with a speed of  $220$  m/s, the bullet's acceleration as it passes through the board is:

- a)  $-500$  km/s<sup>2</sup>      b)  $-550$  km/s<sup>2</sup>      c)  $-360$  km/s<sup>2</sup>      d)  $-520$  km/s<sup>2</sup>      e)  $-275$  km/s<sup>2</sup>

- Q1** A box is moved a distance of 10 m in 5 sec with a constant acceleration, and reached to a velocity of 3m/s. The initial velocity and acceleration of the box are:  
a) -1m/s , 0.2m/s<sup>2</sup>   b) 4m/s , 2m/s<sup>2</sup>   c) 1 m/s , 0.4m/s<sup>2</sup>   d) 3m/s , 1m/s<sup>2</sup>   e) 0m/s , 1m/s<sup>2</sup>
- Q2** A bicycle slowed down to rest from a velocity of 4m/sec while traveling a 10 m distance. The acceleration of the bicycle is:  
a) -1m/s<sup>2</sup>   b) -0.8m/s<sup>2</sup>   c) -0.6m/s<sup>2</sup>   d) -0.4m/s<sup>2</sup>   e) -0.2m/s<sup>2</sup>

- Q1. The velocity & acceleration of an object are vectors. The object can possibly have  
a) a zero acceleration and a non-zero velocity b) a negative acceleration and a non-zero velocity. c) a positive acceleration and a non-zero velocity. d) zero acceleration & zero velocity e) **All of them**
- Q2. A person applies brake to stop his car. As he brakes down, the velocity of his car decreases at a constant rate ( $5.0 \text{ m/s}^2$ ). If his initial velocity is  $20 \text{ m/s}$ , the car's stopping distance is :  
a)  $22.55 \text{ m/s}$  b)  $90 \text{ m/s}$  c)  **$40 \text{ m/s}$**  d)  $35 \text{ m/s}$  e)  $15 \text{ m/s}$
- Q3. A ball is thrown vertically upward with an initial speed of  $18.0 \text{ m/s}$ . it takes to reach its maximum height  
a)  $0.85 \text{ s}$  b)  $2.23 \text{ s}$  c)  $4.52 \text{ s}$  d)  $3.12 \text{ s}$  e)  **$1.84 \text{ s}$**