
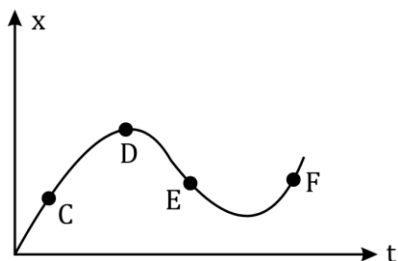


DPP - 3

SOLUTION

Link to View Video Solution:  [Click Here](#)

1.



Slope of C \rightarrow +ve \rightarrow velocity +ve

Slope of D \rightarrow zero \rightarrow velocity zero

Slope of E \rightarrow negative \rightarrow Velocity negative

Slope of F \rightarrow positive \rightarrow Velocity +ve.

2. Area of $v - x$ graph gives Distance travelled.

$$A = 55 \text{ m}$$

3. given \rightarrow acceleration is constant

$$a = \frac{dv}{dt} = v \frac{dv}{dx}$$

$a = \text{constant} \rightarrow$ in graph B $\rightarrow v$ increases

while $\frac{dv}{dx} \rightarrow$ decrease.

So option B is correct.

$$4. v_A = \tan 30^\circ$$

$$v_B = \tan 60^\circ$$


$$\frac{v_A}{v_B} = \frac{\tan 30^\circ}{\tan 60^\circ} = \frac{1}{\sqrt{3} \times \sqrt{3}} = \frac{1}{3}$$

5. Option B.

Slope of $x - t$ graph increase that's mean velocity increases.

\rightarrow Int $v - t$ graph slope is constant that's mean acceleration is constant

$$6. a = v \frac{dv}{dx}$$

Link to View Video Solution:  [Click Here](#)

v +ive & decrease. & $\frac{dv}{dx}$ is constant and negative overall acceleration is de negative & increasing.

So option (A) is correct.

7. A to m Slope of $v - t$ graph is constant f negative. so a is -ive f constant.
m to B. Slope of $v - t$ graph is constant f positive, that's mean acceleration is positive. f constant
So finally option B is correct.

8. Distant is basically area under the $v - t$ graph. All taken positive.

$$d = \frac{37}{3} \text{ m}$$

9. at $t = 5 \text{ sec}$ position of perticle.
= Area of $v - t$ graph from $t = 0$ to $t = 5 \text{ sec}$.
 $= \frac{1}{2} \times 2 \times 2 + 2 \times 2 + 1 \times 3 = 2 + 4 + 3 = 9 \text{ m}$

Option A is correct.

10. Option (a) because at one position they have two velocity which is not possible.

11. Option A

$$q = v \frac{dv}{dx}$$

$v \rightarrow$ positive

but slope $\frac{dv}{dx}$ is negative.

$$12. \frac{v^2 - 20}{x - 0} = \frac{80 - 20}{30}$$


$$v^2 - 20 = \frac{60}{30} x$$

$$v^2 = 2x + 20$$

diff both side w.r.t x .

$$2v \frac{dv}{dx} = 2$$

$$v \frac{dv}{dx} = 1 \text{ ms}^2$$

Link to View Video Solution:  [Click Here](#)

13. Area of $u - t$ graph.

$$\frac{1}{2} \times 10 \times 5 = 25\text{m.}$$

14. Area of ant graph = change in velocity.

$$\frac{1}{2} \times 10 \times 11 = V - 0$$

$$v = 55\text{m/s}$$

