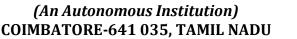


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Initial velocity u= 20m/s Final velocity V=0 (car is bought to rost)

(1) Retardation (-ve acceleration)

$$V = u + at$$
 $O = 20 + (axb)$
 $a = -2.33 \text{ m/s}^2$

retardation = 3.33 \text{m/s}^2.

(11,001-0)10 2) Distance travelled

t= 6 see.

S = Distance toyclled by the caracter applying the

brokes
$$S = ut + 1/2 (a1)^{2}$$

$$S = (20x6) + 1/2 (-3.33 \times 6^{2}) = 60m$$

- (B) A Train stanto from rest and attains a relocity of 45 kmph. is 2 min with writing acceleration. Calculate
 - 1 acceleration 2 Distance travelled in this time, 2 min
 - (3) Time required to reach a velocity of 36 temph

(1) Acceleration (a)

$$V = U + at$$
 $12.5 = D + (ax120)$
 $Q = D.104 m/s^2$



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litely square and a first

2) Distance travelled (s) in 2 mins.

= 748.8m.

(3) Time required to attain relocity of 36 kmph

$$V = 36 \text{ kmph} = \frac{26 \times 1000}{2600} = 10 \text{ m/s}$$

V=u+at 10=0+(0.104xt) t=96.155ec

P) A Burglan's can had a start with an occeleration of 2m/s?

A police vigilant party came after 5 sec and continued to chare
the burglan's car with a uniform velocity of 20m/s. Find the the
the burglan's car with a uniform velocity of 20m/s. Find the the
taken to which the police van will overtake the burglan's car?

Solon!

Initial velocity of Burglar's car = 0

acceleration of Burglar's car = 2m/s²

Police rem came after 5 seconds of the start of Burglar's car uniform relocity of police vom = 20mls.

To find.

-> Time taken in which by the police ran to overtake the Burglar's corr

- Plet t => time taken by police to overtake the Burglar la Corr.

(0(1)) 1 . J. J.



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Molion of Buglar's can

U=0 $\alpha = 2m/s^2$ E=(E+5)

S= ut + 1/2 at2 = 0+ 1/2 x2 x(t+5)

S=(t+5)2

Motion of police wan vigilant Party

uniform velocity = 20m/s

=> Distance travelled by police van from the starting post

of Burglar's corr and to overtake it

5 = uniform velocity x time taken

= 20t

Police van overtakes the Burgbook corr, hence the distance transled by Burglar's corr and police rom should be equal Case to har 5 mil

(++5) = 20t

t2+25+10t-20t=0

F2-10+ 425=0

 $E = 10 \pm \sqrt{10^2 - (4 \times 1 \times 25)} = \frac{10}{2} = 5 \text{ sec}$



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