

## Problems on Trains

1)  $a \text{ km/hr} = \left(a \times \frac{5}{18}\right) \text{ m/s}$

2)  $a \text{ m/s} = \left(a \times \frac{18}{5}\right) \text{ km/hr}$

3) Time taken by a train of length  $l$  metres to pass a pole or a standing man or a signal post is equal to the time taken by the train to cover  $l$  metres.

4) Time taken by a train of length  $l$  metres to pass a stationary object of length  $b$  metres is the time taken by the train to cover

$$(l+b) \text{ metres}$$

5) Suppose two trains or two bodies are moving in the same direction at  $u \text{ m/s}$  and  $v \text{ m/s}$ , where  $u > v$ , then their relative speed is

$$(u-v) \text{ m/s}$$

6) Suppose two trains or two bodies are moving in opposite directions at  $u \text{ m/s}$  and  $v \text{ m/s}$ , then their relative speed is

$$(u+v) \text{ m/s}$$

7) If two trains length  $a$  metres and  $b$  metres are moving in opposite directions at  $u \text{ m/s}$  and  $v \text{ m/s}$ , then time taken by the trains to

cross each other  $\frac{(a+b)}{(u+v)} \text{ sec.}$