**AS1**

1. "She moves at a constant speed in a constant direction". Rephrase the same sentence in a fewer words using concets related to motion.

Ans: The above sentence in a fewrer words can be written as - "She moves at a constant velocity".

2. In the figure given below, distance Vs. time graphs showing motion of two cars A and B are given. Which car moves fast?

Ans: Out of the two cars whose Distance - time graphs are shown in the figure, car A moves faster than car B as seenfrom the graph.

3. Derive the equation for uniform accelerated motion for the displacement covered in its nth second of its motion. (sn = u + a(n - 0.5))

Ans: Let Sn be displacement covered, in the nth second of the motion of a uniformly accelerated body. Let its initialvelocity be 'u' and 'a' be its acceleration.

The displacement of the body St = ut + 0.5at2 (formuala).

Displacement in n seconds => Sn = un + 0.5an2 ....(1)

Displacement in (n-1) seconds => Sn-1 = u(n-1) + 0.5a(n-1)2 ....(2)

Subtracting Sn-1 from Sn

Sn - Sn-1 = (un + 0.5an2) - [u(n-1) + 0.5a(n-1)2]

= un + 0.5an2 - un + u - 0.5a(n-1)2

= 0.5an2 + u - 0.5a(n2 - 2n + 1)

= 0.5an2 + u - o.5an2 + an - 0.5a

= u - + an - 0.5a

= u + a(n - 0.5) [Taking 'a' common]

Hence, displacement undergone in nth second, sn = u + a(n - 0.5)

[Here, 0.5 = 1/2]