Home Assignment

1.) (i) The motion is uniform
(ii) The acceleration in uniform

2.) (i) acceleration = 0

$u = 10$

$S_A = ut + 1/2\ at^2$

$S_A = 10t$

Car B = 1

$S_B = ut + 1/2\ at^2$

$= 0 \times t + \frac{1 \times 1 \times t^2}{2}$

$= \frac{t^2}{2}$

So,

$$\Delta Q \Rightarrow S_B - S_A = 10 \cdot 5$$

$$\frac{t^2}{2} - 10t = 10 \cdot 5$$

$$\frac{t^2 - 20t}{2} = 10 \cdot 5$$

$$\frac{t^2 - 20t}{2} = 10 \cdot 5$$

$$t^2 - 20t = 10 \cdot 5 \times 2$$

$$t^2 - 20t = 21$$

$$t^2 - 20t - 21 = 0$$

$$t^2 - 21t + 1t - 21 = 0$$

$$t(t-21) + 1(t-21) = 0$$

$$(t-21)(t+1) = 0$$

$$t = 21, t = -1$$

3.)

(i) (A) = (D)

(ii) (B) = (f)

(iii) (C) = (S)

(iv) (d) = (q)

4.)

(a) (i) uniform motion

(ii) non - uniform motion

(b) From A to B the velocity is constante hence the velocity is zero

(c) from B to C because the acceleration would be reduced to zero.

5.)

(i) OA = increasing acceleration
AB = uniform motion

(ii) The velocity after 10 seconds is 20m/s
The velocity after 40 seconds is 0m/s

(iii) retardation = V - U / t
= 20 - 0 / 10
= 20 / 10
= 2 / 1
= 2m/s^2

(iv) distance covered = area under velocity - time graph that is area of the rectangle.

= 20 * 20 = 400m