**Motion Revision for Topic Test**

1. *Distance is the length of the pathway taken and is a scalar,*

*Displacement is the length of the line joining the starting point to the finishing point and the direction the line is pointing.*

1. *Vectors are quantities that have magnitude and direction, scalars are quantities that have magnitude only.*
2. Find the distance and displacement of:
3. *Distance = 10m, displacement = 2m right*
4. *Distance = 5km Displ. Diagram: 3.61km S 33.70W*
5. *Speed is the rate of change in distance and is a scalar.*

*Velocity is the rate of change in displacement and is a vector.*

1. a) 5.77 m/s b) 0
2. a) *35.4m b) 2.4m N 35.4 m N c) speed = 6.94 m/s d) v= 0.47 m/s N*

*e) Abs U (l) = 0.025m Abs U (t) = 0.01 s 5U (l) = 0.025/16.5 x 100 =0.152% and 0.132%*

*% U 9t) = 0.01/2x100 = 0.5% and 0.323 %*

1. *6.67 m/s*
2. *9m*
3. *3.45 s*
4. *Acceleration is the rate of change in the velocity of an object. A = v-u/t ms-2*
5. *A = 16.67/60= 0.27ms-2*
6. *t = v-u/a = (20-10)/2.5 = 4 s*
7. How far would a parachutist fall in the first 3.5 seconds? (a = 9.8ms-2, u = 0ms-1) NOT FOR GENERAL 60.0 m
8. What is deceleration? *Occurs when an object slows down.*
9. *a = 0-8/10 = - 0.8 ms-2 = deceleration of 0.8 ms-2*
10. *v = u + at = 60 + -8x5 = 20 m/s in forward direction*
11. How far does an object travel if it starts at 6ms-1 and accelerates at a constant rate of 2ms-2 for 9 seconds? NOT FOR GENERAL *135m*
12. a) *A = (273-31)/3.51 = 68.9 ms-2 in forward direction. B) s = 31 x 3.51 + 0.5 x 68.9 x 3.512 = 533 m*
13. How long does it take a car to cover 90m from the traffic lights if it accelerates at 5 ms-2?

S= ut + ½ at2 90 = ½ x 5 x t2 t = 6 s

1. Draw a ticker tape that shows:
2. constant velocity followed by rapid deceleration
3. rapid acceleration followed by slow deceleration.
4. Two timer tapes were analysed and the following information was recorded:

Tape Intervals (spaces on tape) Length

1 5 34 mm

2 12 50 mm

1. *0.1 s and 0.24s b) 0.34 m/s 0.208 m/s c) Abs U = 0.5 mm % U = 1.47% and 1%*