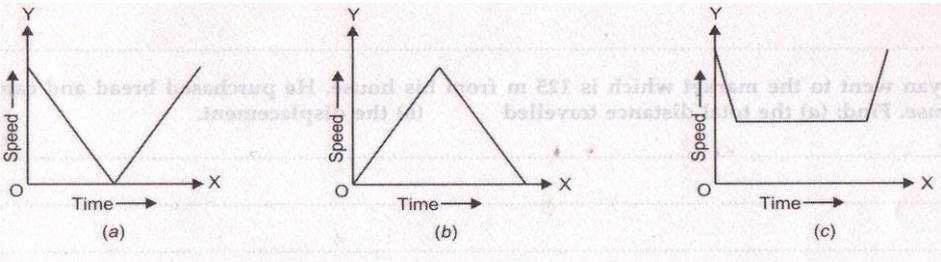
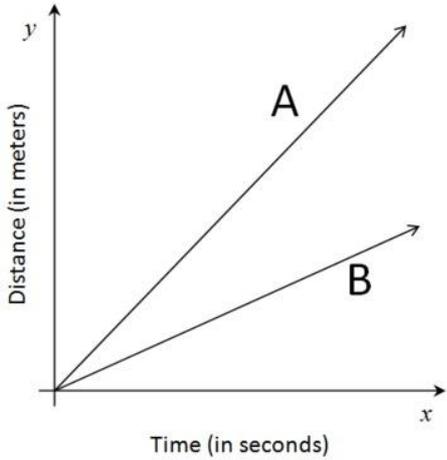


**INDIAN SCHOOL MUSCAT**  
**SENIOR SECTION**  
**DEPARTMENT OF PHYSICS**  
**CLASS IX : MOTION WORKSHEET 1**

SECTION A

CONCEPTUAL QUESTIONS

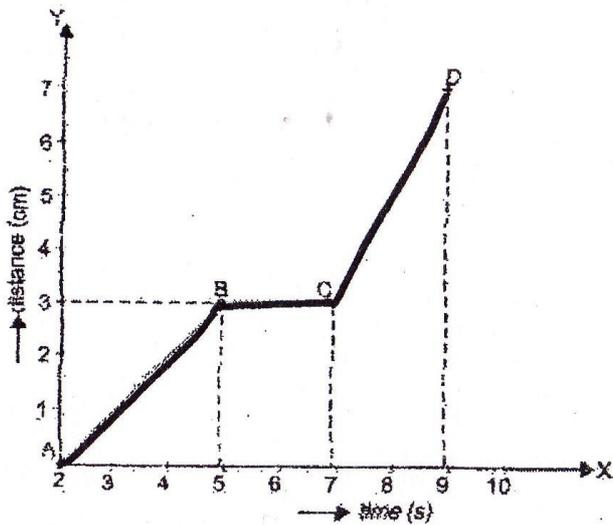
S NO	QUESTIONS	MARKS
1	What does the following represent: i. Slope of the velocity – time graph ii. Area under a velocity – time graph	1
2	What is the value of acceleration for a body at rest?	1
3	The distance time graph of a body is a straight line parallel to the time axis. What information does the graph convey regarding the motion of the object?	1
4	Give an example of motion in which a body has constant speed but not constant velocity.	1
5	Can a v- t graph be perpendicular to time axis? Why?	1
6	Three speed- time graphs are shown below.  <p>Which graph represents the case of :</p> i. A ball thrown vertically upwards and returning to the hands of the thrower. ii. A body decelerating to a constant speed and accelerating.	1
7	Define uniform circular motion. What is the direction of acceleration and velocity of an object moving along a circular path?	2
8	i. List two differences in tabular form between speed and velocity.	2

	<p>ii. When is a body said to have (a) uniform velocity (b) variable velocity?</p> <p>iii. How the average velocity of a body is calculated when its velocity changes at a non-uniform rate?</p>	
9	A body moves around the sun with constant speed in circular path. Is the motion of the body uniform or accelerated?	2
10	Under what condition, the average speed of a moving object is equal to the magnitude of the average velocity.	2
11.	<p>Figure shows distance- time graph of two objects A and B. Which object is moving with a greater speed when both are moving?</p> 	2
12	Derive graphically (i) position-time relation (ii) velocity – time relation for an object under uniformly accelerated motion.	2
13	The displacement of a moving object in a given time interval is zero. Would the distance travelled by the object also be zero? Justify your answer.	2
14	Draw the displacement- time graphs for an object (i) at rest (ii) in uniform motion (iii) in uniformly accelerated motion.	2
15	What is the condition under which the distance and the magnitude of displacement are equal?	1

## SECTION B

### NUMERICALS

16	A car travels 100km at a speed of 60 km/h and returns with a speed of 40 km/h. Calculate the average speed for the whole journey.	2
17	A body starting from rest and moves along the x axis with	2

	constant acceleration $5\text{m/s}^2$ for 8 seconds. If it then continues with constant velocity, what distance will the car cover in 12 seconds since it started from rest?	
18	A car travels with a uniform velocity of $25\text{ m/s}$ for $5\text{s}$ .the brakes are then applied and the car comes to rest with uniform retardation in a further $10\text{ s}$ , then calculate the retardation produced and the total distance travelled in $15\text{ s}$ ?	3
19	A car travelling at $36\text{km/h}$ speeds up to $72\text{km/h}$ in $5\text{ s}$ . What is its acceleration? If the same car stops in $20\text{s}$ , what is its retardation?	3
20	The graph shows the position of a body at different times. Calculate the speed of the body as it moves from (i) A to B (ii) B to C (iii) C to D.  	3
21	The velocity – time graph of a car is given below .The car weighs $1000\text{kg}$ .  i. What is the distance travelled by the car in the first 2 seconds?  ii. What is the retardation produced in the last second of motion of the car?  iii. What is the acceleration of the car during the time interval from 2 to 5 second?	3

22	<p>A radar spots a plane. If radio pulse emitted by radar and reflected by the plane reaches back to ground station in <math>0.5 \times 10^3</math> s. What is the distance of the plane from the radar station? (speed of radio pulse is <math>3 \times 10^8</math> m/s)</p>	2
23	<p>A body moving with a velocity of 2 m/s acquires a velocity of 10 m/s in 5 s. Find its acceleration.</p>	2
24	<p>A body starting from rest travels with uniform acceleration. If it travels a distance of 100 m in 5 s, find the value of acceleration.</p>	2
25	<p>Which type of motion is represented by the velocity – time graph shown below? Name the physical quantity which can be calculated by the area of rectangle ABCD.</p> <p style="text-align: center;"><b>Velocity - Time Graph of an object moving with constant velocity</b></p>	2