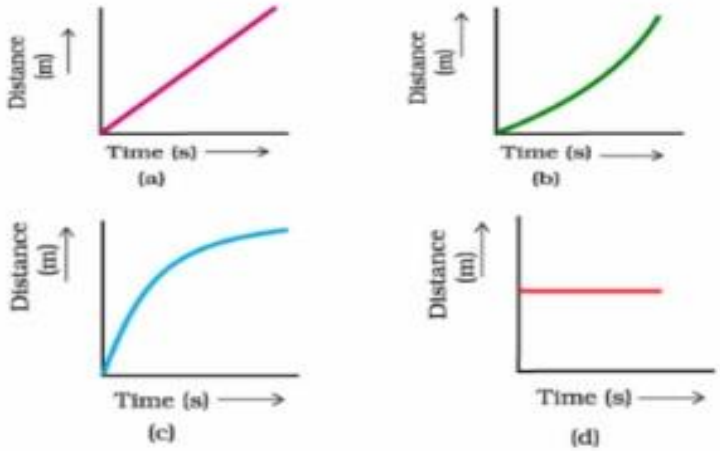
National Institute of Open Schooling
Secondary Course: Science and Technology
Lesson 9 – Motion and its Description
Worksheet-9

1. In your surroundings, you will observe that some things are in motion while others are at rest. Make a list of things which are in motion. Based on your observations; explain the concept of motion and distinguish between rest and motion.
2. Continue to **Q1,** further observe that all the things which are in motion have similar motion or not.
   a) If yes, support your answer with reasons.
   b) If no, explain different types of motion with examples from day to day life.
3. Provide examples of different types of motion from your surroundings.

Rectilinear Motion	Circular Motion	Rotational Motion	Oscillatory Motion
Ball rolling on horizontal surface	Motion of the blades of an electric fan	Earth rotates at its own axis	Pendulum of wall clock

4. You started moving from your home at 9:00 am on a straight road and reached market 5km away. Stayed there for approx 2 hours and returned back to home. While returning you took a different root which is shorter than before i.e. 3.8 km. Represent graphically Distance and Displacement traveled by you during your visit. Differentiate between Distance and Displacement.
5. Different types of motions are represented graphically as given below. Identify and explain following figures representing different motions of a moving object correctly.



6. Observe moving things in your surroundings and estimate their speed/velocity. Give explanation how does velocity differ from speed? Support your answer why velocity is a vector quantity, but not speed.

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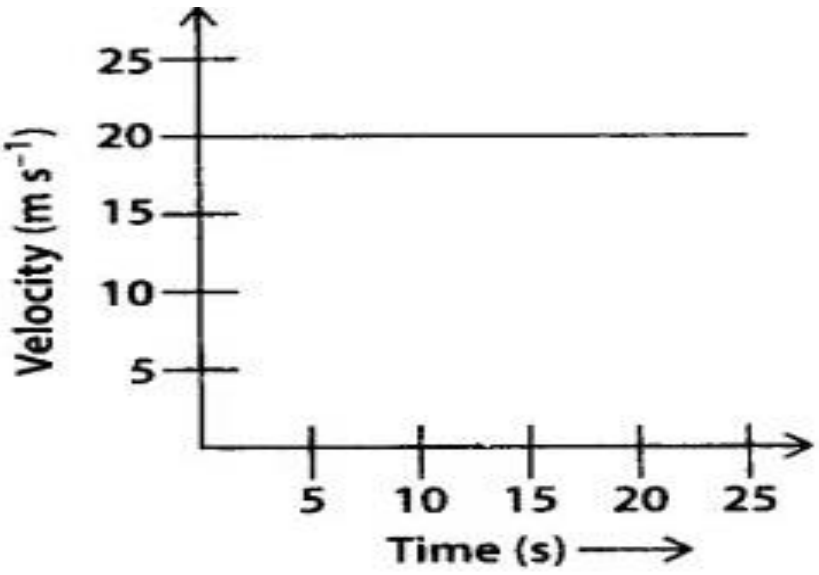
7. If you and your friend ride a bicycle on the road, you will notice that at different times, the both bicycle are found at different positions. Note down five positions at five time intervals for each.

    a) Plot Position Time Graph for Uniform Motion.
    b) Plot Position Time Graph for Non Uniform Motion.
    c) Calculate Velocity from Position Time Graph.
    d) Calculate Distance travelled by you and your friend in 10 Minutes.
    e) Examine whose speed is more?

8. The velocity-time graph below shows the motion of a man. Calculate-

    a) The distance covered by the cyclist in 20 seconds and 25 seconds.
    b) Its velocity.
    c) Its acceleration.



9. Derive/explain different equations of motion.

10. A boy starting from rest travels 40m in first 4s and 200m in next 6s. What will be the velocity after 7s from the start?