

COMPETENCY BASED QUESTIONS(MOTION)

1. A object goes from point X to Y and then come back from Y to X. What is the displacement and average velocity?

2. Four Cyclist A,B,C ,D starts at the same point and at the same time and move in a straight line to reach destination .They all move with uniform velocities. They reach the destination in the following order

$$C \rightarrow A \rightarrow B \rightarrow D$$

Answer the following questions

a. If the displacement-time graph is plotted for each cyclist, which will be having highest slope

b. Arrange the cyclist in decreasing order of velocity

3. What do you infer if ?

1. Distance –time graph is straight line

2. Velocity –time graph is curved

3. Displacement –time is zig zag

4. When an object is thrown upwards, what is true of velocity and acceleration at the highest point of motion of the object?

5. True and False Statements

A. Displacement can be zero but distance never

B. Displacement magnitude can be greater than distance travelled by the object

C. Time is a vector quantity

D. If the velocity of the body decreases with time, the acceleration is negative (retardation), and the motion is called decelerated motion

E. The area of the velocity time graph gives displacement of the body

F. Acceleration is a scalar quantity

G. Motion and rest are relative terms

I. an object can be moving with Uniform speed but variable acceleration

6. An air-plane accelerates down a runway at 3.20 m/s^2 for 32.8 s until is finally lifts off the ground. Determine the distance travelled before take off.

7. A Jeep starts from rest and accelerates uniformly over a time of 5.21 seconds for a distance of 110 m. Determine the acceleration of the Jeep.

8. John is riding the Giant Drop at Canada. If John free falls for 2.6 seconds, what will be his final velocity and how far will he fall?

9. A racing car accelerates uniformly from 18.5 m/s to 46.1 m/s in 2.47 seconds. Determine the acceleration of the car and the distance travelled.

10. A feather is dropped on the planet other than earth which has very low acceleration due to gravity from a height of 1.40 meters. The acceleration of gravity on the other planet is 1.67 m/s^2 . Determine the time of feather to fall to the surface of the other planet