



BRAIN INTERNATIONAL SCHOOL

SESSION 2024-25

CLASS: IX

TERM 1 REVISION SHEET

SUBJECT: PHYSICS

Chapter: Motion

Q1. Multiple Choice Question:

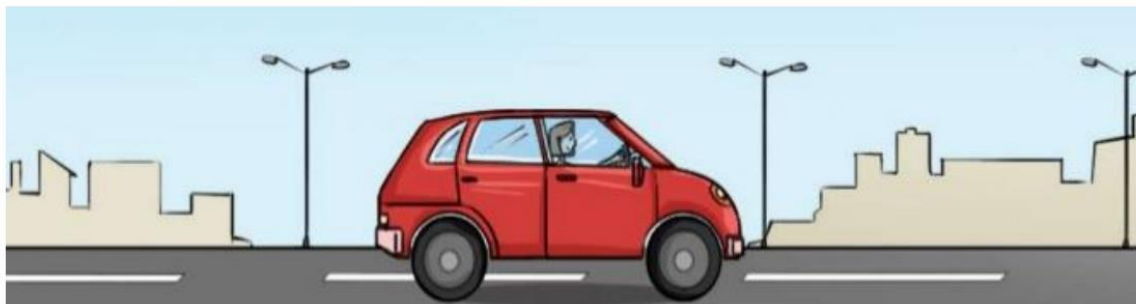
If a body travels 6m towards east and 8m towards south, the displacement of the body is:

- (a) 10m towards south (b) 14m towards east (c) 10m towards north-east (d) 10m towards north-east

Q2. Case based /passage-based questions:

Read the given passage and answer the questions that follows based on the passage and related studied concepts:

One day Rahul decided to go to his office by his car. He is enjoying the driving along with listening the old songs. His car is moving along a straight road at a steady speed. On a particular moment, he notices that the car travels 150 m in 5 seconds.



- What is its average speed?
- How far does it travel in 6 seconds?
- Can a body have its average velocity as zero with non- zero average speed? Give reason.

Q3. Assertion –Reason questions:

Read the assertion and reason statements carefully and write the correct option out of the following options:

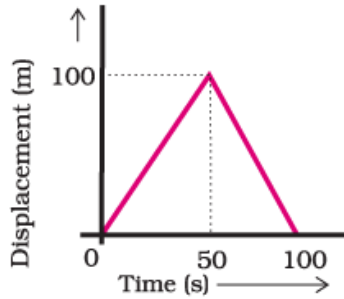
- If both assertion and reason are true and the reason is the correct explanation of the assertion.
- If both the assertion and reason are true but the reason is the correct explanation of the assertion.
- If assertion is true but reason is false.
- If both assertion and reason are false.

Assertion: If a body travels towards left and then towards right along a straight path to the initial position, distance travelled will be greater than the displacement.

Reason: Distance depends on the length of path travelled, while displacement is dependent on the change in position.

Q4. Answer the following questions:

1. A particle is moving in a circle of diameter 5 m. Calculate the distance covered and the displacement when it completes 3 revolutions.
2. A body starts from rest and accelerates uniformly at the rate of 10m/s^2 for 10 seconds. Find the final velocity of the body.
3. A girl walks along a straight path to drop a letter in the letterbox and comes back to her initial position. Her displacement–time graph is shown below. Plot a velocity-time graph for the same.



4. An object projected vertically upwards with an initial velocity of 30m/s , decelerates uniformly at the rate of 10m/s^2 . Find the following:
 - (a) the maximum height at which the velocity of the body reaches to zero.
 - (b) the time taken by the object to reach the maximum height.

Chapter: Force and Laws of Motion

Q1. Multiple Choice Question:

If a force of 10 N acts on two bodies of masses 1 kg and 0.5 kg separately, the value of the acceleration that would be greater is:

- (a) 0 (b) 5 (c) 10 (d) 20

Q2. Case based /passage-based questions:

Read the given passage and answer the questions that follows based on the passage and related studied concepts:

In a bowling game, when we throw a ball down the alley, it continues to roll at the same speed until the friction from the floor, the pins and the wall behind the pins slow it down and bring it to stop. The heavier the ball, the more force we need to apply in throwing it. For a given mass of the ball, the more force we use to throw the faster it goes and the greater force it will have. The ball goes rolling down the alley and knock down the pins. The pins fall with the greater force as they encounter the ball. If a ball strikes another ball, the velocities of the ball change and so they are momentum. We need to understand the angle at which the ball strikes the pins. The number of pins and the arrangement will influence the number of pins that will eventually fall on getting struck by the ball. Applying the knowledge of physics and practice one can play the bowling game better than better by knowing the angle speed and other parameters related to the throw of the ball.

- i. A ball of mass 200 grams rolling on a floor with initial velocity 10m/s comes to rest within 5 seconds. Calculate the frictional force of the floor on the ball.
- ii. Graphically represent momentum versus velocity when mass of body is constant.
- iii. Which requires a greater force giving a 2kg body an acceleration of 5m/s^2 or giving a 4kg body an acceleration of 2m/s^2 ?

Q3. Assertion –Reason questions:

Read the assertion and reason statements carefully and write the correct option out of the following options:

- (a) If both assertion and reason are true and the reason is the correct explanation of the assertion.
- (b) If both the assertion and reason are true but the reason is the correct explanation of the assertion.
- (c) If assertion is true but reason is false.
- (d) If both assertion and reason are false.

Assertion: Two bodies of different masses can possess same momentum.

Reason: Momentum is the product of mass and velocity of a body.

Q4. Answer the following questions:

1. Why does an athlete experience less pain when jumping into a sand heap as opposed to a rigid surface?
2. A body starts from rest and accelerates uniformly at the rate of 10m/s^2 for 10 seconds. Find the final velocity of the body.

3. A body is accelerated uniformly from 12 m/s to 37 m/s in 5 seconds. If the mass of the body is 5 kg and continues to be uniform acceleration, find the following:
 - (a) Force acting on the body
 - (b) Velocity of the body at the end of 8 seconds
4. A body initially moving towards left with a constant velocity of 20 m/s is acted upon by a force of 15 N towards right. If the mass of the object is 0.24 kg , find the following (take the instant the force starts acting at $t=0\text{ s}$). Calculate:
 - (a) acceleration of the body
 - (b) velocity of the body at the end of two seconds
 - (c) displacement of the body at the end of 5 seconds