NTSE

NCERT Solutions for Class 9 Science
PHYSICS – Motion

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NCERT ANNEXURE

Below you can go through the subjective type questions and solutions from NCERT Annexure.

1. **An object has moved through a distance. Can it have zero displacement? If yes, support your answers with an example.**

Ans. Yes, it can have zero displacement.

Example – If we take a round trip and reach back at the starting point, then we have travelled some distance, but our displacement will be zero.

2. **Distinguish between speed and velocity.**

Ans.

S.No.	Speed	Velocity
1	Speed is the distance travelled by a body in unit time.	Velocity is the distance travelled by a body in a particular direction in unit time.
2	Speed is a scalar quantity.	Velocity is a vector quantity.
3	Speed tells how fast a body is moving.	Velocity tells how fast a body is moving along a particular direction.
4	Speed is always positive.	The magnitude of velocity of a body is positive.

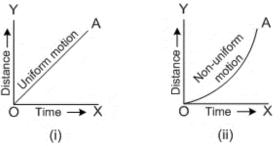**3.** **What does the path of an object look like when it is in uniform motion?**

Ans. An object has a uniform motion if it travels equal distances in equal intervals of time, no matter how small these time intervals may be. This means that in uniform motion, speed is constant but the direction of motion may change. As long as the speed remains constant, the path of an object in uniform motion can have any shape: it can be a straight line path, a circular path or even a zig–zag path.

4. **What is the nature of the distance-time graphs for uniform and non-uniform motion of an object?**

Ans. (i) The distance – time graph for an object having uniform motion is a straight line with some slope [see Figure (i)]

(ii) The distance-time graph for an object having non-uniform motion is a curved line [see Figure (ii)]

5. **What can you say about the motion of an object whose distance–time graph is a straight line parallel to the time-axis?**

Ans. If the distance-time graph of an object is a straight line parallel to the time axis, it shows that the distance of the object from its starting position is just the same at all times. Since the object remains at the same distance from the starting position, it is not moving. The object is stationary.

NCERT EXEMPLAR

Here are the Objective Type questions and their solutions from NCERT Exemplar.

1. **A particle is moving in a circular path of radius r. The displacement after half a circle would be:**

   (A) Zero   (B) p r   (C) 2 r   (D) 2pr

Ans. (C)

2. **A body is thrown vertically upward with velocity u, the greatest height h to which it will rise is,**

   (A) u/g (B) $u^2/2g$ (C) u^2/g (D) $u/2g$
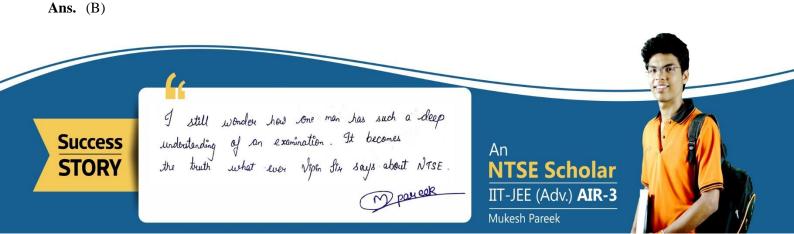
Ans. (B)

3. **The numerical ratio of displacement to distance for a moving object is**

   (A) Always less than 1   (B) Always equal to 1
   (C) Always more than 1   (D) Equal or less than 1

Ans. (D)

4. **If the displacement of an object is proportional to square of time, then the object moves with**

   (A) Uniform velocity   (B) Uniform acceleration
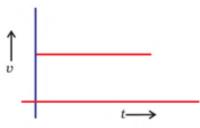   (C) Increasing acceleration   (D) Decreasing acceleration

Ans (B)

5. **From the given v – t graph (Fig.), it can be inferred that the object is**
(A) In uniform motion (B) At rest
(C) In non-uniform motion (D) Moving with uniform acceleration

Ans. (A)