

# SUCCESS KEY TEST SERIES

## Work Sheet

Std: 11th Science

Subject: Physics

Time: 1Hrs

Date :

### 4. Laws of Motions

Max Marks: 35

**Q.1 Select and write the most appropriate answers from given alternatives:**

**5**

- 1) Identify the correct statement.
  - (a) There is only one branch of mechanics.
  - (b) There are two branches of mechanics.
  - (c) There are three branches of mechanics.
  - (d) There are four branches of mechanics.
- 2) For a conservative forces, work done is \_\_\_\_\_ of the actual path.
  - (a) Directly proportional
  - (b) Independent
  - (c) Dependent
  - (d) None of these
- 3) Which of the following is correct for pseudo forces?
  - (a) Pseudo forces are measurable.
  - (b) Pseudo forces are not accountable in inertial frame.
  - (c) Pseudo forces are not among the four fundamental forces.
  - (d) All of these
- 4) The work done by or against conservative forces is equal to the change in
  - (a) Chemical energy
  - (b) Potential energy
  - (c) Kinetic energy
  - (d) All of these.
- 5) Rate of change of liner momentum of a rigid body is directly proportional to the
  - (a) Mass of the body
  - (b) Volume of the body
  - (c) Applied force on the body
  - (d) Area of the body

**Q.2 Answer the following very short questions:**

**5**

- 1) What are weak nuclear forces?
- 2) What are strong nuclear forces?
- 3) What are gravitational forces?
- 4) What is the coefficient of restitution in elastic collisions?
- 5) What is the value of coefficient of restitution for perfectly inelastic collisions?

**Q.3 Answer the following:**

**10**

- 1) Distinguish between Conservative and non-conservative forces.
- 2) Why do cricketers wear helmet and pads while playing?
- 3) Variation of a force in a certain region is given by  $F = 6x^2 - 4x - 8$ . It displaces an object from  $x = 1$  m to  $x = 2$  m in this region. Calculate the amount of work done.
- 4) Distinguish between elastic and inelastic collision.
- 5) Why do we need to know the centre of mass of an object? For which objects, its position may differ from that of the centre of gravity?

**Q.4 Answer the following:**

**15**

- 1) Show that work done on a body by a conservative force is equal to the change in its kinetic energy.
- 2) Are there any situations in which we cannot apply Newton's laws of motion? Is there any alternative for it?
- 3) Explain the statement 'Rest and motion are relative concepts.'
- 4) From the terrace of a building of height  $H$ , you dropped a ball of mass  $m$ . It reached the ground with speed  $v$ . Is the relation  $mgH = \frac{1}{2} mv^2$  applicable exactly? If not, how can you account for the difference? Will the ball bounce to the same height from where it was dropped?
- 5) Mention Newton's second law of motion and its importance.

----- All the Best -----