

# *City International School*

## FIRST TERMINAL EXAMINATION – 2015 - 2016

**Date : 05/08/2015**

**Marks : 40**

**Std : IX**

**Subject : Physics (Paper I)**

**Time : 1hr**

Answers to this paper must be written on the paper provided separately.

You will not be allowed to write during the first 15 minutes.

This time is to be spent in reading the question paper.

The time given at the head of this paper is the time allowed for writing the answers.

This question paper is divided into two sections.

Section A is compulsory. Attempt any two questions from Section B.

The intended marks for questions or parts of questions are given in the bracket. ( )

### SECTION A [20 MARKS]

Attempt all questions from this section.

- Q.1**
- a. Rate of change of velocity. (2)
    - i. Identify the term
    - ii. What kind of quantity is it.
  - b. Explain why a passenger tends to fall when he jumps out of a moving train? (2)
  - c. Redraw and complete the table. (2)

Quantity	Definition	SI unit
	Length $\times$ breadth $\times$ height	
		W

- d. With the help of a diagram show the graph of a body showing uniform retardation. (2)
  - e. How is a distance different from displacement? (2)
- Q. 2**
- a. State the factor affecting inertia of a body. How does it depend on this factor. (2)
  - b. State the kind of quantity which the following examples are: (2)
    - i. Temperature
    - ii. Temperature gradient
  - c. A body is dropped freely under gravity from the top of a tower of height 78.4 m. Calculate. (2)
    - i. The time to reach the ground
    - ii. the velocity with which it hits the ground (take  $g = 9.8\text{m/s}^2$ )
  - d. State the following. (2)
    - i. Importance of law of gravitation.
    - ii. SI unit of electric charge.
  - e. In terms of Newton's third law explain the rocket motion. (2)

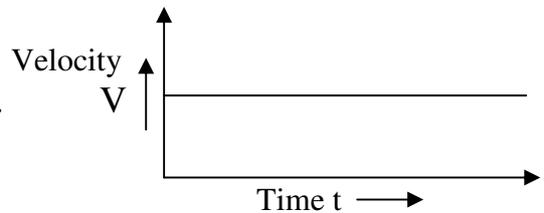
## SECTION B [20 MARKS]

Attempt any two questions in this section.

- Q. 3** a. i. Name the different kinds of quantities. (3)  
ii. How are these quantities different from each other?  
iii. Give an example of each kind of quantity.

- b. A bicycle initially moving with a velocity of  $25\text{m/s}$  accelerates for  $5\text{ s}$  at the rate of  $12\text{m/s}^2$ . Calculate. (2)  
i. Its final velocity. ii. The distance covered by the bicycle.

- c. i. Identity the above quantity shown. (2)  
ii. State its SI unit.



- d. i. Define Linear momentum. (3)  
ii. State its mathematical expression.  
ii. What does a ( $\Delta$ ) in front of a quantity denote.

- Q. 4** a. A ball of mass  $10\text{g}$  is moving with a velocity of  $50\text{ m/s}$ . On applying a Constant force on ball for  $2\text{s}$ , it acquires a velocity of  $70\text{m/s}$ . Calculate. (5)  
i. The initial momentum of the ball.  
ii. The final momentum of the ball.  
iii. The rate of change of momentum.  
iv. The acceleration of the ball.  
v. The magnitude of force applied.

- b. State any two characteristics of Gravitational force. (2)

- c. i. Define one gramme force. (3)  
ii. Complete the sentence :  $1\text{gf} = \underline{\hspace{2cm}}$   
iii. With the help of an expression state the relation between final velocity, gravitational acceleration and height for a freely falling body.

- Q. 5** a. i. State Newton's second law of motion. (4)  
ii. Why do athletes often land on sand after taking a long jump?  
iii. Derive the equation for rate of change of momentum.

- b. "The property of an object by virtue of which it neither changes its state nor tends to change the state". (3)  
i. Identify the above term.  
ii. State its different kind.  
iii. How is the above identified term related to the mass of a body.

- c. A body is thrown vertically upwards. It goes to a height of  $19.6\text{m}$  and then comes back to the ground. Calculate. (3)  
i. The initial velocity of the ball.  
ii. The total time of the journey.  
iii. The final velocity of the ball when it strikes the ground (Take  $g = 9.8\text{ m/s}^2$ )