City International School

FIRST TERMINAL EXAMINATION – 2013 - 2014

Date : 05/08/2013 **Marks : 80**

Std : IX **Subject : Physics (Paper I)** **Time :** 2hrs

Answer to this question 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 contains four questions with five parts each all four parts are to answered.
Section B contains six questions, numbered 5 to 10.
You are to answer four of these questions.
The intended marks for questions or parts of questions are given in the bracket. ( )

SECTION A [40 MARKS]

All questions are compulsory.

Q.1 a. i. SI unit of Electric charge. **(2)**

ii. Quantity with definition: $\frac{work}{time}$

b. i. Kind of Quantity Temperature is Name. **(2)**

ii. Write the relation of acceleration, initial and final velocity with respect to time.

c. A body starts from rest with a uniform acceleration of $4 m/s^2$. **(2)**
Find the distance covered in 6 seconds.

d. With the help of a graph show the motion of car not initially at rest. **(2)**

e. Define force. State its CGS unit. **(2)**

Q. 2 a. "Is the product of mass and linear velocity" Identify the term. **(2)**
What kind of quantity it is?

b. How is acceleration different from retardation? **(2)**

c. A drop falls drown with uniform velocity. Explain. **(2)**

d. Two bodies P and Q are of the same mass but are moving with velocities **(2)**
of V and 5V respectively compare their i. Inertia ii. Momentum

e. A cricket player takes a catch by moving his hands backward 0.75m. **(2)**
If the mass of body is 100g and its initial velocity is108 km/hr.

Q. 3 a. A ray of light strikes a plane mirror such that angle with the mirror is 20°. **(2)**
What is the value of angle of reflection?
State the angle between the incident and reflected ray?

b. How would the work ' IMAGE' appear in a plane mirror. **(2)**
What is such an image called?

c. Differentiate between Regular and Irregular reflection. **(2)**

d. A stone thrown vertically upwards takes 3 seconds to attain maximum height. **(2)**
Calculate i. Initial velocity of stone.
ii. Maximum height attained by stone. (Take g = 9.8m/s^2)

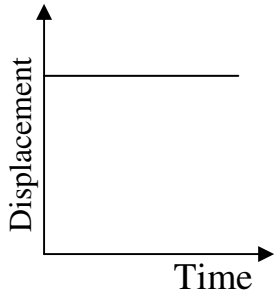
e. Why is it necessary to run along with a moving bus and in the same direction **(2)**
of the bus while alighting from it.

Q. 4 a. State two effects of force. **(2)**

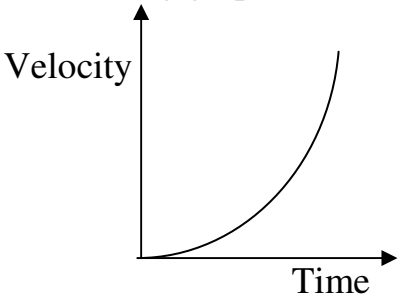
b. A cyclist driving at 5m/s picks up a velocity of 10m/s over a distance of 50m. **(2)**
Calculate i. Acceleration ii. Time in which the cyclist picks up this velocity

c. Suggest the kind of motion of a body from the following graphs. **(2)**

i.



ii.



d. Derive the first equation of motion. **(2)**

e. Define gravitational constant. How does the weight of a body change, **(2)**
if it is taken far away from the earth.

SECTION B [40 MARKS]

Attempt any four questions in this section.

Q. 5 a. With help of neat labelled diagram prove the laws of reflection. **(3)**

b. With respect to a simple periscope answer the following questions. **(3)**
1. Define simple periscope 2. Principe 3. Advantage.

c. State the characteristics of Image formed by a plane mirror. **(4)**

Q. 6 a. When a running car stops suddenly, the passenger tends to lean forwared. **(3)**
Explain which law is applicable.

b. Complete the sentence. **(3)**
According to Newton's _____ law of motion action and reaction act _____ on two _____ bodies.

c. A bullet of mass 50g moving with an initial velocity of 100m/s, strikes a wooden block and comes to rest after penetrating a distance of 2cm in it. **(4)**
Calculate: i. Initial momentum of the bullet.
ii. Final movement of the bullet.
iii. Retardation caused by the wooden block.
iv. Resistive force exerted by the wooden block.

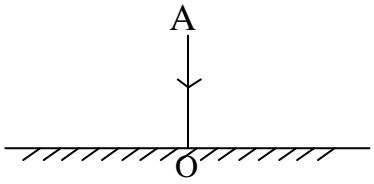
Q. 7 a. State the characteristics of gravitational force. **(3)**

b. Define Average velocity. Can Average velocity be zero? **(3)**
What does positive or negative velocity depend on?

c. A train starts from rest and accelerates uniformly at the rate of $2m/s^2$ for 10 seconds. It then maintains a constant speed for 200 seconds. **(4)**
The brakes are then uniformly retarded and comes to rest in 50 seconds.
Find i. Maximum velocity reached.
ii. Retardation in the last 50 seconds.
iii. Total distance travelled.
iv. Average velocity of the train.

Q. 8 a. Differentiate between Mass and Weight. **(4)**

b. i. Define Incident ray **(3)**
ii. Image formed when reflected rays meet if they are produced backwards. Name.
iii. Complete the path of the ray AO after reflection.



c. Derive third equation of Motion. **(3)**

Q. 9 a. Complete the table. **(4)**

Quantity	Abbreviation	SI unit
A	Force x displacement	B
D	C	Ω

b. Differentiate between distance and displacement. **(3)**

c. A car is moving with a uniform velocity of 30m/s. It is stopped in a seconds by applying a force of 1500N through its brakes calculate. **(3)**
i. Change in momentum of car.
ii. Retardation produced in the car.
iii. Mass of the car.