TEST PAPER: PHYSICS

Time: 60 Minutes **Class:** I.C.S.E. 9

Max. Marks: 40 Marks **Date:** 27th July 2018

Marking Scheme: All questions carry 10 marks each. Subparts **(A)** and **(B)** carry 3 marks each and subpart **(C)** carries 4 marks.

Question 1

A stone is thrown vertically upwards with speed of 40 m/s. Take g = 10 m/s^2

A. Draw the Velocity-time graph of motion of stone until it comes back to the ground.

B. Use the graph to find out the maximum height reached by the stone?

C. What is the final displacement and total distance covered by the stone as it reaches back to the ground

Question 2

A. A car travels a distance of 50 km with a velocity of 25 km/hr and then another 60 km with velocity of 20 km/hr in the same direction. Calculate :

i. Total time of the journey

ii. Average velocity of the car during its total journey

B. Give examples of the following motions. If the given motion is not possible, state that 'it is not possible'

a. Total displacement is zero but distance covered is non zero

b. Total distance covered is zero but displacement is non zero

C. Which of the following statements about distance and/or displacement are TRUE? List all that apply.

i. Distance is a vector quantity and displacement is a scalar quantity.

ii. A person makes a round-trip journey, finishing where she started. The displacement for the trip is 0 and the distance is some nonzero value.

iii. A person starts at position A and finishes at position B. The distance for the trip is the length of the segment measured from A to B.

iv. If a person walks in a straight line and never changes direction, then the distance and the displacement will have exactly the same magnitude.

Question 3

A. A car is moving in a straight line with speed 18 km/hr. It is stopped in 5 s by applying brakes. Find the following:

a. Retardation of the car

b. Speed of the car after 2 s of applying the brakes

B. A feather is dropped on the moon from a height of 1.40 meters. The acceleration of gravity on the moon is 1.67 m/s^2. Determine the time for the feather to fall to the surface of the moon.

C. Answer the following questions:

a. What is the meaning of unit? Define Fundamental and derived units

b. State all the fundamental quantities along with their units and symbols

c. Define light year. Express 1 light year in kilometers (speed of light is $3*10^8$ m/s)

Question 4

A. Answer the following questions

i. When is a Vernier caliper said to be free from zero error?

ii. Main scale of Vernier caliper has 20 divisions in 1 cm. Its Vernier scale has 50 divisions on it of length same as 49 divisions of main scale. Find the least count of this instrument.

B. A simple pendulum completes 40 oscillations in 1 minute. Calculate its frequency and time period

C. i. A stopwatch has 10 divisions graduated between 0 & 5 s marks. What is its least count?

ii. Compare time periods of two pendulums of length 1m and 9m