QUARTERLY EXAMINATION : 2021–22

CLASS : IX (ICSE)

Time : 2 hrs. ***Science Paper-1 (Physics)*** M.M.: 80

- ***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.***

- ***SECTION-I is compulsory. Attempt ANY FOUR questions from SECTION-II.***
- ***The intended marks for questions or parts of questions are given in brackets [ ].***

SECTION-I [40 Marks]

(Answer all question from this section)

Q.1. (a) What prefix will you use for following : [2]

(i) 10^6 (ii) 10^{-9}

(b) Identify the correct ones : [2]

(i) 2m or 2M

(ii) 7 ms^{-1} or 7m/s

(c) What are the components of magnitude of a physical quantity ? [2]

(d) Define 1 light year. Also write its relation with SI unit of length. [2]

(e) Identify the derived units : [2]

ms^{-1} , m , cd , m^2 , A

Q.2. (a) Calculate seconds in a year (Take 1 year=365 days) [2]

(b) Name the physical quantities which are measures in following units : [2]

(i) u (ii) f

(iii) k (iv) nm

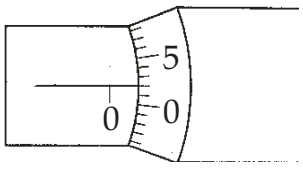
(c) What is the relation between T, l and g. [2]

(d) State the numerical value of the frequency of second's pendulum. Does it depend on mass of the bob ? [2]

(e) It takes 0.2 s for a pendulum bob to move from mean position to one end. What is the time period of pendulum ? [2]

Q.3. (a) What do you mean by least count of an instrument ? [2]

(b) Does the following screw gauge has an error ? If yes, name it. [2]



(c) Which of the quantity, velocity or acceleration determines the direction of motion ? [2]

(d) How does 'g' charge with (i) altitude and (ii) with depth from the earth's surface ? [2]

(e) Write an expression for the distance 's' covered in time 't' by a body which is initially at rest and starts moving with a constant acceleration a . [2]

Q.4. (a) What does the following imply : [2]

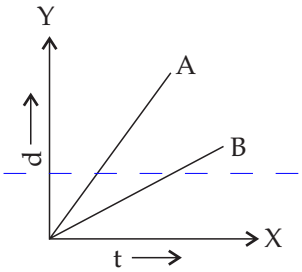
(i) u=0

(ii) a=0

(b) When is the instantaneous speed same as the average speed ? By which instrument we measure instantaneous speed of a car ? [2]

(c) Is it possible that speed of a body remains constant but velocity changes ? If yes give one example. [2]

(d) In the given graph which body is moving faster A or B ? Why ? [2]



(e) Ammeter 'A' has 5 divisions between the marks 0 and 1A while ammeter 'B' has 10 divisions between the marks 0 and 1 A. Which will give more precise reading ? [2]

SECTION-II (40 marks)

(Attempt any 4 questions.)

Q.5. (a) What is backlash error ? Why is it caused ? How is it avoided ? [3]

(b) What are the causes of zero error ? When is a vernier callipers said to be free from zero error ? [3]

(c) Name the part of the vernier callipers which is used to measure the following : [4]

(i) external diameter of a tube

(ii) internal diameter of a sphere

(iii) depth of a small beaker

(iv) thickness of a pencil

Q.6. (a) Two simple pendulums A and B have lengths 1m and 4m respectively. Which pendulum will make more ascillations in 1 minutes ? Define time period of a simple pendulum. [3]

(b) How does the time-period (T) of a simple pendulum depend on its length (l)? Draw a graph showing the variation of T^2 with l. How will you use this graph to determine the value of 'g' ? [3]

(c) How is the time-period of a simple pendulum affected in the following situations :

(i) the length is made four times.

(ii) the acceleration due to gravity is reduced to one- fourth. [4]

Q.7. (a) Write any three characteristics of a unit. [3]

(b) Write any 6 fundamental quantities alongwith symbols of their units. [3]

(c) The wave length of light is 6000 Å. Express it in : [4]

(i) nm (ii) m

Q.8. (a) A car moving on a straight path covers a distance of 1 km due east in 100s. What is (i) the speed and (ii) the velocity of car ? [3]

(b) Write any three differences between speed and velocity. [3]

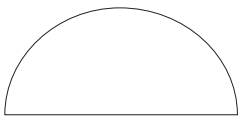
(c) A car is moving an a semicircular path of radius 7 km. If it starts from point A and ends at point B in 2hr then find : [4]

(i) distance covered by car

(ii) displacement of car

(iii) speed of car

(iv) velocity of car



Q.9. (a) (i) Draw d-t graph for a body which is moving with constant velocity. [3]

(ii) Draw v-t graph for a body which is moving with constant acceleration.

(iii) Can d-t graph be parallel displacement axis ?

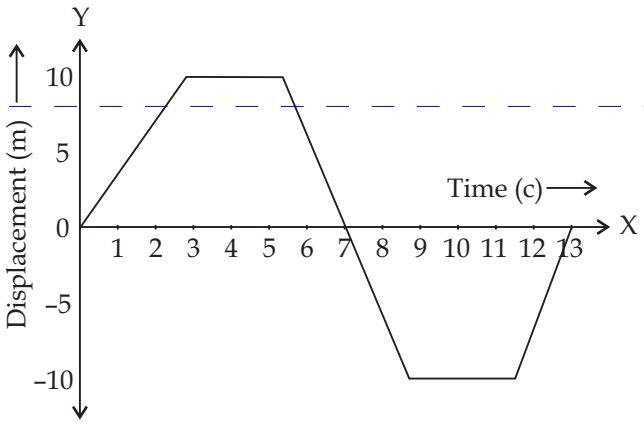
(b) (i) One hard disc stores 512 GB of data. If hard disc is half empty, then how many KB is left empty.

(i) What does the area enclosed between v-t graph and time axis ? [3]

(c) Find : (i) the average velocity in the first 4s. [1]

(ii) the displacement from the initial position at the end of 10s. [1]

(iii) the time after which he reaches the starting point. [2]



Q.l0. (a) State whether the following quantity is a scalar or vector :

(i) momentum

(ii) pressure

(iii) force [3]

(b) (i) What kind of motion is represented by equations of motion ? [3]

(ii) For a motion with uniform velocity, write expression for 'v' in terms of 's'.

(iii) A body is moving along a circular path. Will the average velocity or instantaneous velocity, be zero ?

(c) A body moving with a constant acceleration travels the distances 3m and 8m respectively in 1s and 2s. Calculate (i) the initial velocity and (ii) the acceleration of body. [4]

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