ICSE Board
Class IX Physics
Paper – 2

Time: 2 hrs **Total Marks: 80**

General Instructions:

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

*2. You will **not** be allowed to write during the first **15** minutes.*
This time is to be spent in reading the question paper.

3. The time given at the head of the paper is the time allotted for writing the answers.

*4. Attempt **all** questions from **Section I** and **any four** questions from **Section II**.*

5. The intended marks of questions or parts of questions are given in brackets [ ].

SECTION I (40 Marks)
Attempt *all* Questions from this Section

Question 1

(a) Define the term unit. What is the SI unit of length? [2]

(b) What are the fundamental quantities and their units in SI system? [2]

(c) Find the order of magnitude of the following quantities: [2]

i. 375000 kg

ii. 0.0007 m

(d) Define Parsec. [2]

(e) What do you mean by derived units? [2]

Question 2

(a) [2]

i. Why do objects fall towards the earth?

ii. What do you mean by action?

(b) [2]

i. Define one newton.

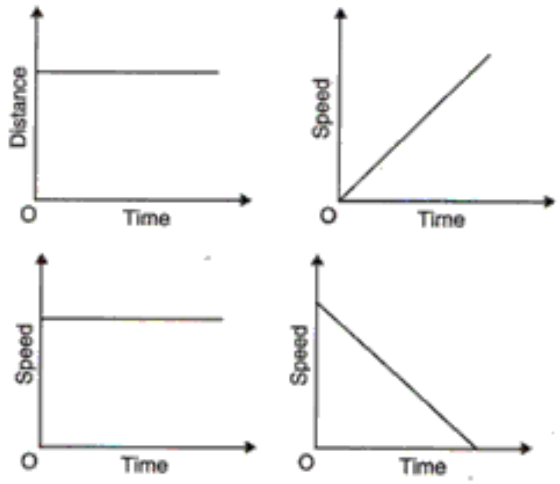
ii. What is the ratio of SI to CGS units of force?

(c) State Newton's second law of motion. [2]

(d) [2]

i. Define retardation of a body.

ii. Which of the graphs shown below represents motion with uniform speed?



(e) A body starts from rest with a uniform acceleration of $2ms^{-2}$. Find the distance covered by the body in 2 s. [2]

Question 3

(a) Why is the air conditioner in a room installed near the ceiling? [2]

(b) Why do water pipes often burst during severe frost? [2]

(c) How can you distinguish between a convex mirror and concave mirror without touching? Explain. [2]

(d) In a solid, heat is not transferred by the process of convection. Give reason. [2]

(e) An object is brought close to a concave mirror from infinity, how does the size of the image change? [2]

Question 4

(a) Which mirror will be preferred as a rear view mirror in a truck: plane mirror or convex mirror? Why? [2]

(b) [2]

i. What causes sound?

ii. There is no atmosphere on the Moon. Can you hear each other on the Moon's surface?

(c) A positively charged rod is brought near the disc of a positively charged gold leaf electroscope. State your observation with reason. [2]

(d) State four factors on which the resistance of a wire depends. [2]

(e) [2]

i. What are the poles of a bar magnet?

ii. What are neutral points?

SECTION II (40 Marks)
Attempt *any four* Questions from this Section

Question 5

(a) What do you mean by inertia of motion? Give one example each of inertia of rest and inertia of motion. [3]

(b) Define mass. What is its SI unit? [2]

(c) State the laws of liquid pressure. [5]

Question 6

(a) Deduce an expression for the pressure at a depth inside a liquid. [4]

(b) What do you mean by a periscope? Name the principle employed in a periscope. [2]

(c) A clock having marks instead of numbers on its dial appears to indicate 4:35 when viewed through a plane mirror. What is the correct time? Why does this anomaly occur? [2]

(d) A uniform circular motion is an accelerated motion. Establish it. [2]

Question 7

(a) State Archimedes' principle. Describe an experiment to verify Archimedes' principle. [5]

(b) A body weighs 450 g f in air and 310 g f when completely immersed in water. Find:

i. The loss in weight of the body in water,

ii. The up thrust on the body. [2]

(c) What is the difference between thrust and pressure? Give their SI units. [3]

Question 8

(a) Describe an experiment to demonstrate thermal expansion in gases. [4]

(b) The coefficient of cubical expansion of copper is 5.1×10^{-5} per ^{o}C. Calculate its coefficient of linear expansion. [2]

(c) [4]

i. Why are cloudy nights warmer than clear nights?

ii. Why cooking utensils are blackened from base and kept shining from sides?

Question 9

(a) Describe an experiment to show that a blackened surface is a better absorber of heat than a polished one. [3]

(b) Draw a flow chart to establish that the transfer of sun's energy in a sun-ecosystem combination is not cyclic. [3]

(c) With the help of diagrams, explain the difference between regular and irregular reflection. [4]

Question 10

(a) Name the mirror which always produces an erect and virtual image. How is the size of the image related to the size of object for such a mirror? [2]

(b) For what positions of the object, the image formed by a concave mirror is magnified and erect? [2]

(c) Compare approximately the speed of sound in air, water and steel. [2]

(d) Compare electrostatic induction and conduction. [2]

(e) 'The resistance of a wire is 1 ohm. Does this value depend on the circuit in which it is connected? Explain. [2]