

**ICSE Board**  
**Class IX Physics**  
**Sample Paper – 6**

**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) The wavelength of yellow light is 589 nm. What is its order of magnitude in meter? [2]
- (b)
- i. State one use of a screw gauge.
  - ii. Name the instrument which has the least count
    - (a) 0.1 mm
    - (b) 1 mm
    - (c) 0.01 mm
- (c) What is meant by order of magnitude of a physical quantity? [2]  
Give two examples.
- (d) Name three units used to express small measurements of length. [2]
- (e) Name three units of length which are bigger than a meter. How are they related to a meter? [2]

**Question 2**

- (a) Define acceleration. State its SI unit. [2]
- (b) A body starts from rest and acquires a velocity of  $10 \text{ ms}^{-1}$  in 2 s. Find its acceleration. [2]
- (c) State Newton's third law of motion. Do action and reaction act on the same body? [2]
- (d) Name and define the SI unit of linear momentum. [2]
- (e) [2]
- i. Define weight. What is its unit?
  - ii. Define gravitational constant.

**Question 3**

- (a) State Newton's law of gravitation. What is the unit of gravitational force? [2]
- (b)
- Define up thrust.
  - State SI unit of measuring up thrust. [2]
- (c)
- How does the density of water change with temperature?
  - The density of iron is  $7.8 \times 10^3 \text{ kg m}^{-3}$ . What is its relative density? [2]
- (d) Distinguish between heat and temperature. (write 2 points of difference) [2]
- (e) Why are liquid or gas containers heated from the bottom for rise in temperature? [2]

**Question 4**

- (a) [2]
- Define potential difference between two charged bodies.
  - Define one ohm.
- (b) [2]
- Is it possible to isolate the poles of a magnet?
  - Define lines of force in a magnetic field.
- (c) Name the instruments used for detecting the electrical charge on a body. [2]
- (d) [2]
- What is ultrasound?
  - State the approximate speed of ultrasound in the air.
- (e) In case of a convex mirror, if the object is moved closer to the surface of the mirror, how does the size of the image change? [2]

**SECTION II (40 Marks)****Attempt *any four* Questions from this Section****Question 5**

- (a) What force is required to produce an acceleration of  $2 \text{ ms}^{-2}$  in a body of mass  $0.8 \text{ kg}$ ? [2]
- (b) What is the acceleration due to gravity? Is it a constant? Explain. [5]
- (c) Two objects 'X' and 'Y' of masses 'M' and 'm' respectively, are separated by a distance 'd'. If the mass of the object 'X' is tripled, then calculate the force of gravitation between them. [3]

**Question 6**

- (a) What is the difference between thrust and pressure? Write their SI units. [3]
- (b) A cube of side  $5 \text{ cm}$  is placed inside a liquid. The pressure at the centre of one face of cube is  $10 \text{ Pa}$ . Calculate the thrust exerted by the liquid on this face. [3]
- (c) [4]
- What do you mean by diving suit? Give the two categories in which modern diving suits are divided.
  - Why is blood pressure in humans greater at the feet than at the brain?

**Question 7**

- (a) State the effect of temperature on density of a substance. [2]
- (b) What do you mean by anomalous expansion of water? Draw a graph to show the variation of density of water with temperature in the range from  $0^\circ\text{C}$  to  $10^\circ\text{C}$ . [4]
- (c) [4]
- How much will a bar of aluminium,  $100 \text{ cm}$  long, expand when heated from  $20^\circ\text{C}$  to  $100^\circ\text{C}$ ? (Coefficient of linear expansion of aluminium is  $0.000025^\circ\text{C}^{-1}$ ).
  - What is the SI unit of heat?

**Question 8**

- (a) What do you mean by a spherical mirror? Explain with a suitable diagram, the converging of a parallel beam of light rays by a concave mirror. [3]
- (b) State the laws of reflection. [2]
- (c) Describe an experiment to verify the laws of reflection. [5]

**Question 9**

- (a) State three characteristics of the medium required for the propagation of sound. [3]
- (b) How does the speed of sound in gas vary with temperature, pressure and humidity? [3]
- (c) Answer the following:
- Why is a distant lightning flash seen before the thunder is heard?
  - If you place your ear close to an iron railing which is tapped some distance away, you hear the sound twice. Explain, why? [4]

**Question 10**

- (a) Suggest some steps to reduce energy consumption. [3]
- (b) Name the instrument used to regulate current in the circuit. [1]
- (c) Write the SI unit of potential difference. [1]
- (d) A bar of soft iron is placed near a magnet. [2]
- State the magnetic properties it acquires.
  - The magnet is now removed. What happens to the magnetic property acquired?
- (e)
- In the absence of any other magnet, draw and show field lines of the Earth at a place.
  - A bar magnet is placed north-pointing north. Draw and show magnetic field in the region around the bar magnet. Mark the “neutral point”. [3]