

# Physics Exam Answer Key - 1

Grade: VII

Duration: 2 hours

Maximum Marks: 80

## SECTION A (Objective & Short Answer)

Q1. Choose the correct answers from the given options: [10]

1. The SI unit of density is:  
(i)  $\text{kg/m}^3$
2. The volume of a cuboid of length 3 cm, breadth 4 cm, and height 5 cm is:  
(iii)  $60 \text{ cm}^3$
3. Which of the following is an example of a good conductor of heat?  
(iii) Copper
4. The speed of light in air is approximately:  
(i)  $3 \times 10^8 \text{ m/s}$
5. The phenomenon of light bouncing back from a surface is called:  
(iii) Reflection
6. Which of the following is used to measure electric current?  
(i) Ammeter
7. The freezing point of water in Kelvin scale is:  
(i) 273 K
8. Which law states that "Angle of incidence is equal to the angle of reflection"?  
(iii) Laws of Reflection
9. The force of attraction between like poles of a magnet is:  
(ii) Repulsion
10. The process in which solid changes directly into gas is called:  
(ii) Sublimation

Q2. Fill in the blanks with appropriate terms: [5]

1. Volume is a \_\_\_\_ (fundamental/derived) physical quantity.  
Answer: Derived

2. The SI unit of power is \_\_\_\_.

Answer: Watt (W)

3. Heat always flows from \_\_\_\_ object to \_\_\_\_ object.

Answer: Hot, cold

4. A real image can be \_\_\_\_ on a screen.

Answer: Captured

5. The magnetic field around a current-carrying wire was discovered by \_\_\_\_.

Answer: Hans Oersted

Q3. State whether the following statements are True or False: [5]

1. Non-uniform motion has uniform velocity.

Answer: False

2. A convex mirror always forms a real image.

Answer: False

3. Electricity is generated by electromagnetic induction.

Answer: True

4. The SI unit of temperature is Fahrenheit.

Answer: False

5. Water expands on freezing.

Answer: True

Q4. Name the following: [5]

1. The unit used to measure electric current.

Answer: Ammeter

2. The process in which heat travels through solids.

Answer: Conduction

3. The phenomenon where light bends when passing from one medium to another.

Answer: Refraction

4. The device used to measure temperature.

Answer: Thermometer

5. The scientist who discovered the laws of electromagnetic induction.

Answer: Michael Faraday

Q5. Match the following: [5]

| Column A                                  | Column B     |
|---|--------------|
| The force between like poles              | Repulsion    |
| Device to measure current                 | Galvanometer |
| The SI unit of heat energy                | Joule        |
| Process of changing gas into liquid       | Condensation |
| The bending of light rays in a new medium | Refraction   |

**Q6. Give reasons for the following: [5]**

1. Why does a black surface absorb more heat than a white surface?

Answer: A black surface absorbs all wavelengths of light, converting them into heat, while white reflects most of the light.

2. Why does a plane mirror always form a virtual image?

Answer: A plane mirror always forms a virtual image because the reflected rays appear to diverge from behind the mirror but do not actually meet.

3. Why is it difficult to walk on ice compared to a rough surface?

Answer: Ice has a lower coefficient of friction, leading to less grip and increased chances of slipping.

4. Why do metals expand when heated?

Answer: Metals expand when heated because the particles gain energy and move apart, increasing the material's overall size.

5. Why is repulsion considered a sure test for magnetism?

Answer: Repulsion is considered a sure test for magnetism because only like poles repel, confirming that an object is a magnet.

## SECTION B (Descriptive & Numerical)

**Q7. Answer all the following questions: [10]**

1. Define density and write its formula.

Answer: Density is defined as the mass per unit volume of a substance.

Formula:  $\rho = m/V$

2. Explain lateral inversion with an example.

Answer: Lateral inversion is the phenomenon where the left side of an object

appears as the right side in its mirror image. Example: The word "AMBULANCE" is written in reverse on ambulances so that it appears correctly in a rear-view mirror.

3. State the laws of reflection.

Answer:

- The incident ray, reflected ray, and the normal lie in the same plane.
- The angle of incidence is equal to the angle of reflection.

4. What is an electromagnet? List two uses of electromagnets.

Answer: An electromagnet is a temporary magnet created by passing electric current through a coil of wire around an iron core.

Uses: Electric bells, MRI machines.

5. Explain the working of a simple electric bell.

Answer: A simple electric bell works using an electromagnet that attracts a metal arm when current flows, striking the bell and breaking the circuit repeatedly to produce sound.

6. Convert 35°C to Kelvin and Fahrenheit.

Answer:

- Kelvin:  $K = 35 + 273 = 308 \text{ K}$
- Fahrenheit:  $F = (9/5 \times 35) + 32 = 95^\circ\text{F}$

7. Define potential difference and state its SI unit.

Answer: Potential difference is the work done per unit charge to move a charge between two points.

SI unit: Volt (V)

**End of the Answer Key**