

SATISH CHANDRA MEMORIAL SCHOOL
CASE BASED QUESTION
CLASS VII
FM - 14

A. Riya is standing in front of a plane mirror fixed on the wall of her room. She observes that when she raises her right hand, the image in the mirror appears to raise its left hand. She also notices that the distance between her and the mirror is the same as the distance between her image and the mirror.

Q1. The phenomenon in which left appears right in a plane mirror is called:

- A. Reflection
- B. Refraction
- C. Dispersion
- D. Lateral inversion

Q2. Which statement is correct for both regular and irregular reflection?

- A. Reflected rays are always parallel
- B. Images are always formed
- C. Angle of incidence equals angle of reflection for each ray
- D. Light scatters in all directions

Q3. The image formed by a plane mirror is always:

- A. Real and inverted
- B. Virtual and erect
- C. Real and erect
- D. Virtual and inverted

Q4. If an object is placed 3 m in front of a plane mirror, the image will be formed at:

- A. 6 m away from the object
- B. 3 m behind the mirror
- C. 6 m behind the mirror
- D. Both A and B

Q5. Which of the following changes when light is reflected from a plane mirror?

- A. Speed of light
- B. Colour of light
- C. Direction of light
- D. Intensity of light

Q6. Which factor primarily decides whether reflection from a surface will be regular or irregular?

- A. Colour of light
- B. Intensity of incident light
- C. Smoothness of the reflecting surface relative to wavelength
- D. Angle of incidence

7. The normal at the point of incidence is:

- A. Parallel to the mirror
- B. Along the mirror surface
- C. Perpendicular to the mirror
- D. Inclined at 45° to the mirror

B. An industrial laboratory is studying the reactions of various salts formed from different combinations of acids and bases. Three salts P, Q, and R are prepared as follows:

Salt P is formed by reacting a strong acid with a strong base

Salt Q is formed by reacting a strong acid with a weak base

Salt R is formed by reacting a weak acid with a strong base

The aqueous solutions of these salts are tested for pH and hydrolysis behavior. The lab also studies their reactions with indicators and thermal stability.

1. The correct order of increasing pH of aqueous solutions of salts P, Q, and R is:

- A) $Q < P < R$
- B) $P < Q < R$
- C) $Q < R < P$

D) $R < P < Q$

2. If methyl orange is added to solutions of P, Q, and R, which one will show a red colour?

A) Only P

B) Only Q

C) Only R

D) P and Q

3. Salt R solution turns phenolphthalein pink because:

A) It releases H^+ ions in water

B) It produces OH^- ions in water

C) It is formed from two strong electrolytes

D) It does not react with indicators

4. Which salt will have $pH < 7$ and why?

A) Salt P, due to strong acid

B) Salt Q, due to weak base

C) Salt R, due to weak acid

D) All salts have $pH < 7$

5. Which artificial indicator is best to identify the basic nature of Salt R?

A) Methyl orange

B) Blue litmus

C) Turmeric

D) Red litmus

6. The process of formation of salts P, Q, and R from acids and bases is called:

A) Reduction

B) Oxidation

C) Neutralization

D) Displacement

7. Which natural indicator is best to identify the basic nature of Salt R?

A) Methyl orange

B) Blue litmus

C) Phenolphthalein

D) Red litmus

