QB365 Question Paper Software
10th Standard - Science
Light Reflection and Refraction Assertion and reason

Exam Time: 00:20 Hrs | Date: 2025-10-11

Total Marks: 10

Questions:

Assertion and reason

1. **Assertion:** The sunlight that passes through the lens burns the paper at the spot.
Reason: The heat produced due to the concentration of sunlight ignites the paper
Codes
(a) If both assertion and reason are true and the reason is correct explanation of assertion.
(b) If both assertion and reason are true but reason is not a correct explanation of assertion. -.
(c) If assertion is true and reason is false.
(d) If both assertion and reason are false.

2. **Assertion:** The dentists use convex mirrors to see large images of the teeth of patients.
Reason: The convex mirrors always produces the enlarged image of the object.
Codes
(a) If both assertion and reason are true and the reason is correct explanation of assertion.
(b) If both assertion and reason are true but reason is not a correct explanation of assertion. -.
(c) If assertion is true and reason is false.
(d) If both assertion and reason are false.

3. **Assertion:** A convex lens of short focal length bends the light rays through large angles.
Reason: This helps in by focusing the light closer to the optical centre.
Codes
(a) If both assertion and reason are true and the reason is correct explanation of assertion.
(b) If both assertion and reason are true but reason is not a correct explanation of assertion. -.
(c) If assertion is true and reason is false.
(d) If both assertion and reason are false.

4. **Assertion:** Opticians prescribe corrective lenses indicating their powers
Reason: The power of a convex lens is negative and that of a concave lens is positive.
Codes
(a) If both assertion and reason are true and the reason is correct explanation of assertion.
(b) If both assertion and reason are true but reason is not a correct explanation of assertion. -.
(c) If assertion is true and reason is false.
(d) If both assertion and reason are false.

5. **Assertion:** The extent of refraction is different for different medium.
Reason: Different medium have different refractive index.

Codes

(a) If both assertion and reason are true and the reason is correct explanation of assertion.

(b) If both assertion and reason are true but reason is not a correct explanation of assertion. -.

(c) If assertion is true and reason is false.

(d) If both assertion and reason are false.

6. **Assertion:** Focal length of concave mirror is +ve

Reason: Focal length of convex mirror is -ve

Codes

(a) If both assertion and reason are true and the reason is correct explanation of assertion.

(b) If both assertion and reason are true but reason is not a correct explanation of assertion. -.

(c) If assertion is true and reason is false.

(d) If both assertion and reason are false.

7. **Assertion:** Linear magnification of a mirror has no unit.

Reason: The ratio of height of the image to the height of the object is the linear magnification produced by mirror.

Codes

(a) Both A and R are true, and R is correct explanation of the assertion.

(b) Both A and R are true, but R is not the correct explanation of the assertion.

(c) A is true, but R is false.

(d) A is false, but R is true

8. **Assertion:** Property of converging of a convergent lens does not remain same in all media.

Reason : Property of lens whether the ray is diverging or converging is independent of the surrounding medium.

Codes

(a) Both A and R are true, and R is correct explanation of the assertion.

(b) Both A and R are true, but R is not the correct explanation of the assertion.

(c) A is true, but R is false.

(d) A is false, but R is true

9. **Assertion**: In the case of concave mirror, the minimum distance between real object and its real image is zero.

Reason: If concave mirror forms virtual image of real object, the image is magnified.

Codes

(a) Both A and R are true, and R is correct explanation of the assertion.

(b) Both A and R are true, but R is not the correct explanation of the assertion.

(c) A is true, but R is false.

(d) A is false, but R is true.

10. **Assertion:** Keeping a point object fixed, if a plane mirror is moved, the image will also move.

Reason : In case of a plane mirror, distance of object and its image is equal from any point on the mirror.

Codes

(a) Both A and R are true, and R is correct explanation of the assertion.

(b) Both A and R are true, but R is not the correct explanation of the assertion.
(c) A is true, but R is false.
(d) A is false, but R is true.

Answers Key:

Assertion and reason

1. (a) If both assertion and reason are true and the reason is correct explanation of assertion.
2. (d) If both assertion and reason are false.
3. (a) If both assertion and reason are true and the reason is correct explanation of assertion.
4. (c) If assertion is true and reason is false.
5. (a) If both assertion and reason are true and the reason is correct explanation of assertion.
6. (d) If both assertion and reason are false.
7. **(a):** Linear magnification of a mirror is the ratio of height of the image (cm) and the height of the object (cm) and it has no unit.
8. **(c):** A convex lens made of glass behaves as a convergent lens when placed in air or water. However when the same lens is immersed in carbon disulphide (n = 1.63), it behaves as a divergent lens. Therefore when a convergent lens is placed inside a transparent medium of refractive index greater than that of material of the lens, it behaves as a divergent lens. Behaviour of a lens depends on the refractive index of a surrounding medium.
9. **(b) :** If object is placed at centre of curvature of concave mirror, its image is at the centre of curvature. Thus, minimum distance between object and its real image is zero. If object is between pole and focus of concave mirror, its image is virtual and magnified.
10. **(a):** The image formed in a plane mirror is at the same distance behind the mirror as the object is in the front of the mirror. Image and the object are at equal distances from a plane mirror.