Brain International School

Vikas Puri, New Delhi

REVISION SHEET

SUBJECT: PHYSICS **CLASS-X** **TERM 1**

Chapter: Light- Reflection and Refraction

1. An optical device forms an erect image of an object placed in front of it. If the size of the image is one half that of the object, the optical device is a

   (a) concave mirror

   (b) convex mirror

   (c) plane mirror

   (d) convex lens.

2. When an object is kept within the focus of a concave mirror, an enlarged image is formed behind the mirror. This image is

   (a) real

   (b) virtual and inverted

   (c) inverted

   (d) virtual and erect

3. The magnification produced when an object is placed at a distance of 20 cm from a spherical mirror is +1/2. Where should the object be placed to reduce the magnification to +1/3?
4. A student has focused the image of an object of height 3 cm on a white screen using a concave mirror of focal length 12 cm. If the distance of the object from the mirror is 18 cm, find the values of the following:
   (i) distance of the image from the mirror.
   (ii) height of the image.
5. A concave mirror has a focal length of 20 cm. At what distance from the mirror should a 4 cm tall object be placed so that it forms an image at a distance of 30 cm from the mirror? Also calculate the size of the image formed.
6. Draw a ray diagram to show the reflection of light from a concave mirror when the object is placed between the focus and the pole.
7. An object is placed 20 cm in front of a concave mirror of focal length 15 cm. Find the position of the image formed. Also, state whether the image is real or virtual.
8. convex lens has a focal length of 10 cm. An object is placed 15 cm from the lens. Find the image distance and the nature of the image.
9. An object 5 cm tall is placed 12 cm from a concave lens of focal length 8 cm. Calculate the position, size, and nature of the image formed.
10. An object is placed 25 cm in front of a convex mirror with a focal length of 20 cm. Find the position and nature of the image formed.

11. A concave lens has a focal length of 25 cm. Calculate its power.
12. Two lenses of focal lengths +15 cm and -10 cm are placed in contact. Find the focal length and power of the combination.

For question numbers 6 and 7, two statements are given- one labeled Assertion (A) and the other labeled Reason (R). Select the correct answer to these questions from the codes (a), (b), (c) and (d) as given below:

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.

13. **Assertion**: Convex mirrors can produce both real and virtual images.
Reason: Plane mirror always forms virtual image.
14. **Assertion:** The SI unit of power of lens is 'dioptre'.
Reason: The power of a concave lens is positive and that of a convex lens is negative.

Chapter: Human Eye and Colorful World

1. **Assertion (A):** The human eye can focus on objects at different distances by changing the shape of the lens.
Reason (R): The ciliary muscles adjust the curvature of the eye lens to focus light on the retina.
2. **Assertion(A):** Myopia can be corrected by using a concave lens.
Reason (R): In myopia, the image of a distant object is formed behind the retina.
3. **Assertion (A):** The sky appears blue during the day.
Reason (R): Blue light is scattered more than other colors due to its shorter wavelength.
4. **Assertion (A):** A rainbow is formed due to dispersion of light in water droplets.
Reason (R): Dispersion occurs because different colors of light bend by different amounts when passing through a medium.
5. **Assertion (A):** The pupil becomes smaller in bright light.
Reason (R): The iris contracts to reduce the amount of light entering the eye in bright conditions.
6. **Assertion (A):** Hypermetropia is corrected using a convex lens.
Reason (R): In hypermetropia, the image is formed in front of the retina.
7. **Assertion (A):** Twinkling of stars is caused by refraction of light through the Earth's atmosphere.
Reason (R): The Earth's atmosphere is composed of layers with different densities causing continuous bending of starlight.
8. **Assertion (A):** The image formed on the retina is always real and inverted.
Reason (R): The lens of the eye converges light rays to form an image on the retina.
9. **Assertion (A):** The far point of a normal human eye is infinity.
Reason (R): The eye lens becomes flat when viewing distant objects, allowing focus on objects at infinity.
10. A person went for a medical check-up and found that the curvature of his eye lens was increasing. Which defect is he likely to suffer from?
(a) Myopia
(b) Cataract
(c) Presbyopia
(d) Hypermetropia

11. A person gets out in the sunlight from a dark room. How does his pupil regulate and control the light entering the eye?

(a) The size of the pupil will decrease, and less light will enter the eye

(b) The size of the pupil will decrease, and more light will enter the eye

(c) The size of the pupil will remain the same, but more light will enter the eye

(d) The size of the pupil will remain the same, but less light will enter the eye

12. When light rays enter the eye, most of the refraction occurs at the

(a) Crystalline lens

(b) The outer surface of the cornea

(c) Iris

(d) Pupil

13. State one function of the crystalline lens in the human eye.

14. Define the term power of accommodation. Write the modification in the curvature of the eye lens which enables us to see the nearby objects clearly?

15. State the function of each of the following parts of human eye:

(i) Cornea

(ii) Iris

(iii) Pupil

16. Why is the sky blue during the day?

17. Explain why the sun appears reddish during sunrise and sunset.

18. What is dispersion of light? Which phenomenon causes a rainbow?

19. How is a rainbow formed?

20. Why do we see different colors when white light passes through a prism?

21. What causes the twinkling of stars?

22. Why does the moon sometimes appear reddish during a lunar eclipse?

23. Define refraction of light with an example from everyday life.

24. How does pollution affect the colors of the sky?

25. What is scattering of light?

26. Draw a labelled diagram of the human eye.

27. Explain how the human eye focuses on distant and near objects.

28. Why do we need a convex lens to correct hypermetropia?

29. What happens to the size of the pupil in bright and dim light?

30. What is the function of the retina in the human eye?