CBSE 10th Light Reflection And Refraction Unsolved Paper

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SECTION – A

Q.1. The rays, parallel to the principal axis, of a spherical mirror, actually meet at a point 20 cm distant from its pole. Identify the mirror and give its focal length.

Q.2 Define the principal focus of a concave mirror?

Q.3. Define 1 dioptre of power of lens.

Q.4. The radius of curvature of a spherical mirror is 20 cm. What is its focal length?

Q.5 Find the power of a concave lens of focal length 2 m.

Q.6 Define one dioptre?

Q.7 Find the focal length of a convex mirror whose radius of curvature is 32 cm.

Q.8. A concave mirror produces three times magnified (enlarged) real image of object placed at 10 cm in front of it. Where is the image located?

Q.9. Focal length of a convex mirror is 10 cm. Find the radius of curvature of the mirror?

Q.10. Which of the following lens would you prefer to use while reading small letters found in a dictionary?

(a) A convex lens of focal length 50 cm
(b) A concave lens of focal length 50 cm
(c) A convex lens of focal length 5 cm
(d) A concave lens of focal length 5 cm

SECTION – B

Q.11. Find the power of a concave lens of focal length 2 m?

Q.12. Three mirrors, one plane, one concave and one convex are lying on the table. How can a person identify them without touching them or using any other apparatus or device?

Q.13. Why do we prefer a convex mirror as a rear view mirror in vehicles?

Q.14. Find the focal length of a convex mirror whose radius of curvature is 32 cm.

Q.15. A concave mirror produces three times magnified real image of an object placed at 10 cm in front of it. Where is the image located?

Q.16. Absolute refractive Index of some of material is tabulated below

Material	Rock Salt	Kerosene	Water	Diamond
Refractive	1.54	1.44	1.33	2.42

(i) In which of these does light travel fastest and why?
(ii) arrange these materials in ascending order of their optical densities.

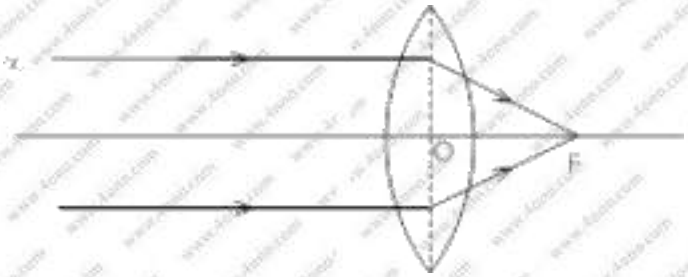
Q.17. A rod of length 10 cm lies along the principal axis of a concave mirror of 10 cm in such a way that the end closer to the pole is 20 cm away from it. Find the length of image?

SECTION – C

Q.18. Draw a ray diagram to represent the nature, position and size of the image formed by a convex lens for the object placed at

(a) infinity

(b) Between F_1 and optical centre (O)



Q. 19. A convex mirror used on a bus has a focal length of 200 cm. If a scooter is located at 100 cm. from this mirror find the position, nature and magnification of the image formed in the mirror.

Q.20. A concave lens has focal length of 20 cm. At what distance from the lens a 5 cm tall object be placed so that it forms an image at 15 cm from the lens? Also calculate the size of the image formed?

Q.21. An object is kept at a distance of 15 cm from a (a) convex mirror (b) concave lens (c) Plane mirror. The focal length of the convex mirror and the concave lens are 10 cm each. Draw the appropriate ray diagrams, showing the formation of image, in each of the three cases.

Q.22. A concave mirror is used to form an erect and enlarged image of a given object. Where is the image located with respect to the mirror? Draw the corresponding ray diagram.

Q.23. Light enters from air to glass having refractive index 1.50. What is the speed of light in glass? The speed of light in vacuum is $= 3 \times 10^8 m/s$

Q.24. We wish to obtain an erect image of an object, using a concave mirror of focal length 15 cm.

What should be the range of distance of the object from mirror? What is the nature of image? Is the image larger or smaller than the object? Draw a ray diagram to show the image formation in this case.

SECTION – D

Q.25. An object is placed at a distance of 12 cm in front of a concave mirror. It forms a real image four times larger than the object. Calculate the distance of the image from the mirror

Q.26. A rod of length 10 cm lies along the principal axis of a concave mirror of 10 cm in such a way that the end closer to the pole is 20 cm away from it. Find the length of image?

Q.27. A convex lens of focal length 15 cm forms an image 10 cm from the lens. How far is the object placed from the lens? Draw the ray diagram.

Q.28. An object 5 cm in length is held 25 cm away from a converging lens of focal length 10 cm. Draw the ray diagram and find the position, size and the nature of the image formed.

Q.29. One-half of a convex lens is covered with a black paper. Will this lens produce a complete image of the object? Verify your answers experimentally. Explain your observations.

Q.30. Draw a ray diagram to show the use of a convex lens for the formation of images having the following characteristics.

(a) Real & inverted and diminished
(b) Virtual, erect & magnified.