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India's Number 1 Education App

## PHYSICS

## BOOKS - MBD NCERT SOLUTIONS

## LIGHT : REFLECTION AND REFRACTION

Multiple Choice Questions

1. The formula for magnification $m$ of a lens is:
A. $\frac{v}{u}$
B. $\frac{-v}{u}$
C. $\frac{u}{v}$
D. $-\frac{u}{v}$

Answer: A

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## 2. Which one of the following describes the

 nature of image formed by a concave lens?A. Real

## B. Virtual

## C. Inverted

D. None of these

Answer: B

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## 3. Magnification of mirror is $+2 / 3$, the type of

 mirror is :A. Concave
B. Plane

## C. Convex

D. Combination of all

## Answer: C

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4. Radius of curvature of a mirror is +20 cm , it is a :
A. Convex mirror
B. Concave mirror
C. Plane mirror
D. Nothing can be said with certainty

## Answer: A

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5. Magnification produced by convex mirror is :
A. always positive and greater than one
B. always negative
C. always positive and less than one
D. zero

## Answer: C

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6. A concave mirror is a part of sphere of radius 20 cm , the focal length of concave mirror is :
A. 10 cm
B. 20 cm
C. -20 cm
D. -10 cm

## Answer: D

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# 7. Plane mirror is a part of sphere of radius: 

A. zero
B. infinity

# C. nil since it is not a part of sphere 

D. any value depending upon its size

Answer: B

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8. Image formed by plane mirror is :
A. erect and virtual
B. erect and inverted
C. inverted and real
D. inverted and virtual

## Answer: A

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9. An object 20 cm high is placed at a distance
of 90 cm from a plane mirror, the size of image
will be :
A. 20 cm
B. 90 cm

## C. 180 cm

D. 40 cm

## Answer: A

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10. At what position does an object needs to
be placed so that a concave mirror gives an image which is virtual in nature, erect and magnified as compared to the object?:

## A. at infinity

B. between P and F
C. beyond C
D. between C and F

Answer: B

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11. What is a mirror formula?

$$
\text { A. } \frac{1}{v}-\frac{1}{u}=\frac{1}{f}
$$

B. $\frac{1}{u}-\frac{1}{v}=\frac{1}{f}$
C. $\frac{1}{v}+\frac{1}{u}=\frac{1}{f}$
D. All of the above

Answer: C

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12. Which is not a primary colour ?
A. Blue
B. Red

## C. Yellow

D. White

## Answer: D

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13. What is the formula for power of a lens?
A. $P=4 f$
B. $P=2 f$
C. $P=\frac{1}{2 f}$
D. $P=\frac{1}{f}$

## Answer: C

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14. What is the colour for danger?
A. Blue
B. Green
C. Yellow
D. Red

## Answer: D

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15. The lens formula is

$$
\begin{aligned}
& \text { A. } \frac{1}{v}-\frac{1}{u}=\frac{1}{f} \\
& \text { B. } \frac{1}{u}-\frac{1}{v}=\frac{1}{f} \\
& \text { C. } \frac{1}{v}+\frac{1}{u}=\frac{1}{f}
\end{aligned}
$$

D. All of the above
16. In eyes the image which is formed on the retina is
A. Real and erect
B. Real and inverted
C. Virtual and erect
D. Virtual and inverted

Answer: B

## Very Short Answer Type Questions

1. Define the principal focus of a concave mirror.
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2. The radius of curvature of a spherical mirror is 20 cm . What is its focal length?
3. Name a mirror that can give an erect and enlarged image of an object.

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4. Find the focal length of a concave mirror whose radius of carvature is 32 cm .
5. A concave mirror produeces a three times magnified (enlarged) real image of an object placed at 10 cm in front of it. Where is the image located?

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6. Define one dioptre of power of a lens.

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7. Find the power of a concave lens of focal length $2 m$.

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## Short Answer Type Questions

## 1. LAWS OF REFLECTION

2. What is mirror formula ? Does this formula hold good for a plane mirror ?

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3. What is the name given to change of path of light without any change of medium ?

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4. What is refraction of light ? Give example.

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## 5. What is velocity of light in water ?

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6. State the lens formula and explain its uses
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7. Which lens is used by watch makers ?

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8. What will be the nature of a spherical mirror and a thin spherical lens if both have negative focal length ?

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9. Which part of the eye controls the amount of light entering in it

The black pigment in the eye which reduces the internal reflection is located in

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10. Power of which lens is negative? Also give
the relation between focal length and power of a lens

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11. What will be the effect on focal length of a lens immersed in water?

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12. Using a ray diagram, explain the position, relative size and nature of image of an object
placed between the $F_{1}$ and $2 F_{1}$ of a convex lens.

# 1. Distinguish between real and virtual image 

 with an example.D Watch Video Solution
2. What is power of lens ?What are its units?

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3. What is meant by power of a lens? What is one dioptre?

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4. What is lens formula ? Give its sign conventions and assumptions.

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5. What is magnification of a lens ?

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6. What are cartesian sign conventions used in spherical mirror ? What is the mirror formula?

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7. What is a lens? Distinguish between a convex lens and a concave lens. Which of the two is a converging lens: convex and lens or concave lens?
8. How does the tank appear to a viewer from outside?

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9. Explain with the help of a diagram, why a pencil partly immersed in water appears to be bent at the water surface.
10. What are the uses of concave and convex mirrors ?

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11. Define refraction of light. State Snell's law of refraction of light.

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12. (a) Light enters from air to glass having refractive index of 1.50 . What is the speed of light in glass? The speed of light in vacuum is $3 \times 10^{8} \mathrm{~ms}^{-1}$.
(b) An object is situated at a position in between the main focus (F) and 2F of a convex lens. Draw the ray diagram showing the position, size and nature of image formed.

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13. (a) An object is placed at the centre of curvature (c) of a concave mirror. Draw the ray diagram to depict the position, size and nature of image formed.
(b) Find the focal length of a lens of power 2.0 D. What type of lens is this ?

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