St. Lawrence High School

A Jesuit Christian Minority Institution

Term : 2nd

Solution of Work Sheet – 8

Class – X | Subject – Physical Science | Date – 28.04.20

Chapter – Light | Topic – Image formation by mirrors and refraction of light

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Choose the correct option for the following questions. $1 \times 15 = 15$

1. For any object placed within the focus of a concave mirror perpendicularly on the principal axis, the image will be formed –
   a. in front of the mirror
   b. behind the mirror
   c. At the same position
   d. At infinity
   Ans: b. behind the mirror
2. For any object placed within the focus of a concave mirror perpendicularly on the principal axis, the image formed will be –
   a. Magnified
   b. Diminished
   c. Of same size
   d. Depends on the exact position of object.
   Ans: a. Magnified
3. For any object placed within the focus of a concave mirror perpendicularly on the principal axis, the image formed will be –
   a. Real and inverted
   b. Real and erect
   c. Virtual and inverted
   d. Virtual and erect
   Ans: e. Virtual and erect
4. The image formed in convex mirror is –
   a. Always real
   b. Always virtual
   c. May be both
   d. Real, only when the object is at infinity
   Ans: b. Always virtual
5. If a point object is placed at infinity (or at a very large distance) from a convex mirror, then its image will be formed –
   a. At infinity
   b. At centre of curvature
   c. At focus
   d. At pole
   Ans: c. At focus
6. If a point object is placed at infinity (or at a very large distance) from a convex mirror of focal length 15cm, then its image will be formed –
   a. At infinity

b. At 30am behind the mirror
c. At 15 cm in front of the mirror
d. At 15 cm behind the mirror

Ans: d. At 15 cm behind the mirror

7. The linear magnification is defined as $m =$
   a. $\frac{height\ of\ object}{height\ of\ image}$
   b. $\frac{height\ of\ image}{height\ of\ object}$
   c. $\frac{image\ \ distance}{object\ \ distance}$
   d. Both b. and c.

   Ans: both b. and c.
8. $m > 1$ means –
   a. Image is magnified
   b. Image is diminished
   c. Image is of same size
   d. None of the above

   Ans: a. Image is magnified
9. Value of m in case of image formation by concave mirror, –
   a. is always greater than 1
   b. is always less than 1
   c. is always equal to 1
   d. Can be greater or less than 1 depending on the position of object

   Ans: d. Can be greater or less than 1 depending on the position of object
10. Value of m in case of image formation by convex mirror, –
    a. is always greater than 1
    b. is always less than 1
    c. is always equal to 1
    d. Can be greater or less than 1 depending on the position of object

    Ans: b. is always less than 1
11. The SI unit of linear magnification is –
    a. m/sec
    b. m/rad
    c. rad/m
    d. it's a unit less quantity

    Ans: d. it's a unit less quantity
12. If any object is placed at centre of curvature of a convex mirror perpendicularly on its principal axis, then the linear magnification will be –
    a. Less than 1
    b. Greater than 1
    c. Equal to 1
    d. It depends on the radius of curvature of the mirror

    Ans: c. equal to 1
13. The absolute refractive index of any medium (except air) –
    a. Is less than 1
    b. Equal to 1
    c. Will be always greater than 1
    d. Can be more than 1 or less than 1, depending on the nature of medium

    Ans: c. Will be always greater than 1

14. If, c = the speed of light in vacuum and v = the speed of light in water, then, the r.i. of water, =
    a. $\frac{v}{c}$
    b. $\frac{c}{v}$
    c. $\frac{cv}{c+v}$
    d. $\frac{c+v}{cv}$

    Ans: b. $\frac{c}{v}$

15. If, r.i. of any medium is $\sqrt{3}$, then the speed of light in that medium is –
    a. $3\sqrt{3} \times 10^8\ m/s$
    b. $10^8\ m/s$
    c. $\frac{1}{\sqrt{3}} \times 10^8 m/s$
    d. $\sqrt{3} \times 10^8\ m/s$

    Ans: d. $\sqrt{3} \times 10^8\ m/s$

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