

Chapter-1

Worksheet-2

Section 1

Q1. List four characteristics of the images formed by plane mirrors.

Q2. Draw a ray diagram to show the path of the reflected ray corresponding to an incident ray which is directed parallel to the principal axis of a convex mirror. Mark on it the angle of incident and the angle of reflection

Q3. A spherical mirror produces an image of magnification -1 on a screen placed at a distance of 50 cm from the mirror.

(a) Write the type of mirror.

(b) Find the distance of the image from the object.

(c) What is the focal length of the mirror?

(d) Draw the ray diagram to show the image formation in this case.

Q4. State the laws of refraction of light. If the speed of light in vacuum is $3 \times 10^8 \text{ ms}^{-1}$, find the speed of light in a medium of absolute refractive index 1.5.

Q5. Which phenomenon is responsible for making the path of light visible?

Q6. When we place a glass prism in the path of a narrow beam of white light a spectrum is obtained

Q7. What happens when a second identical prism is placed in an inverted position with respect to the first prism? Draw a labeled ray diagram to illustrate it.

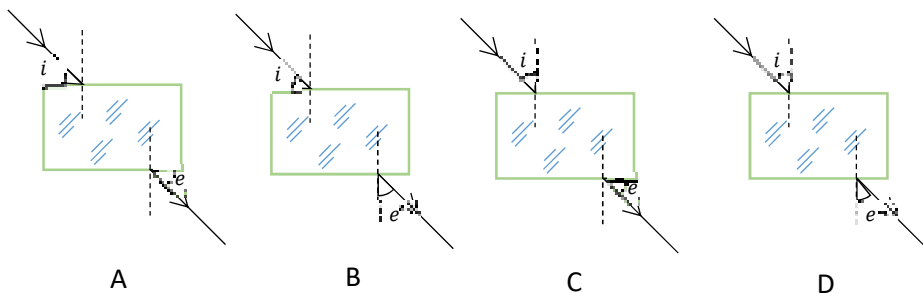
Q8. The power of the lens is -4.0D. What is the nature of this lens?

Q9. Which type of mirror is used to give erect and enlarged image of an object?

Q10. Draw the ray diagram and also state the position, the relative size and the nature of image formed by a concave mirror when the object is placed at the centre of curvature of the mirror.

Section 2

Q11. A student does the experiment on tracing the path of a ray of light passing through a rectangular glass slab for different angles of incidence. He can get a correct measure of the angle of incidence and the angle of emergence by following the labelling indicated in figure:



- a) A
- b) B
- c) C
- d) D

Answer: d)

Q12. Which of the following can make a parallel beam of light when light from a point source is incident on it?

- (a) Concave mirror as well as convex lens
- (b) Convex mirror as well as concave lens
- (c) Two plane mirrors placed at 90° to each other
- (d) Concave mirror as well as concave lens

Answer: a

Q13. A 10 mm long awl pin is placed vertically in front of a concave mirror. A 5 mm long image of the awl pin is formed at 30 cm in front of the mirror. The focal length of this mirror is

- a) -30 cm
- b) -20 cm
- c) -40 cm
- d) -60 cm

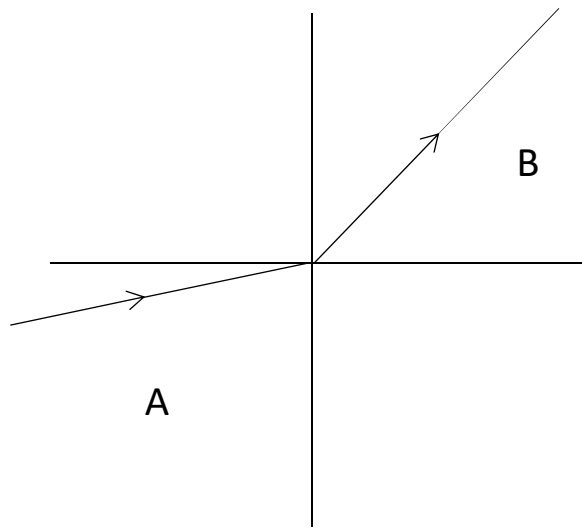
Answer: b

Q14. Under which of the following conditions a concave mirror can form an image larger than the actual object?

- a) When the object is kept at a distance equal to its radius of curvature
- b) When object is kept at a distance less than its focal length
- c) When object is placed between the focus and centre of curvature
- d) When object is kept at a distance greater than its radius of curvature

Answer: c

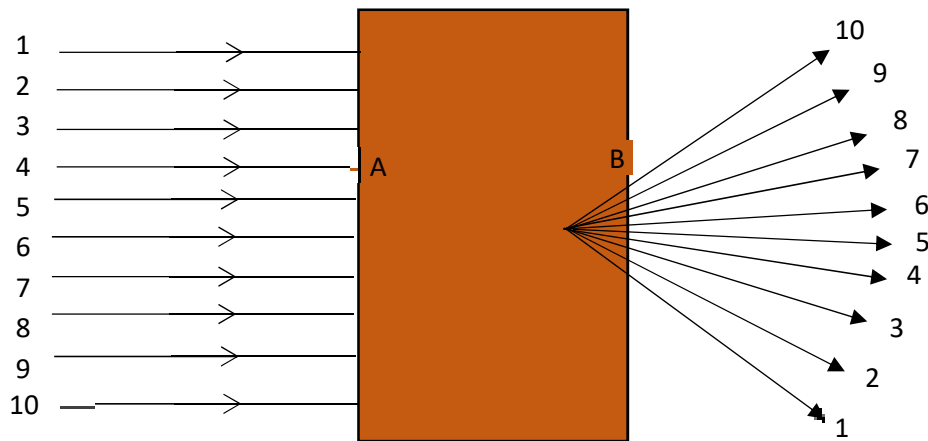
Q15. A light ray enters from medium A to medium B as shown in figure. The refractive index of medium B relative to A will be



- a) Greater than unity
- b) Less than unity
- c) Equal to unity
- d) zero

Answer: a

Q16. A beam of light is incident through the holes on side A and emerges out of the holes on the other face of the box as show in the figure. Which of the following could be inside the box?



- a) Concave lens
- b) Rectangular Glass Slab
- c) Prism
- d) Convex lens

Answer: d

Q17. Which of the following statements is true?

- a) A convex lens has 4 diopter power having a focal length 0.25 m
- b) A convex lens has -4 diopter power having a focal length 0.25 m
- c) A concave lens has 4 diopter power having a focal length 0.25 m
- d) A concave lens has -4 diopter power having a focal length 0.25 m

Answer: a

Q18. Magnification produced by a rear view mirror fitted in vehicles

- a) is less than one
- b) is more than one

- c) is equal to one
- d) can be more than or less than one depending upon the position of the object in front of it.

Answer: a

Q19. Rays from Sun converge at a point 15 cm in front of a concave mirror. Where should an object be placed so that size of its image is equal to the size of the object?

- a) 15 cm in front of the mirror
- b) 30 cm in front of the mirror
- c) between 15 cm and 30 cm in front of the mirror
- d) more than 30 cm in front of the mirror

Answer: b

Q20. A full length image of a distant tall building can definitely be seen by using

- a) a concave mirror
- b) a convex mirror
- c) a plane mirror
- d) both concave as well as plane mirror

Answer: b