

## Practice Questions - Term I

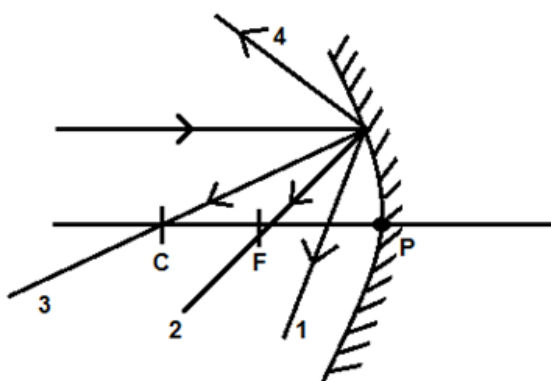
Date: 12/11/2021

Subject: Physics

Topic : Light: Reflection and Refraction

Class: X

1. Ray of light falling parallel to the principal axis follows which path after reflection?

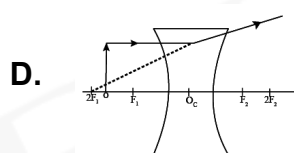
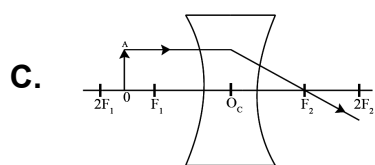
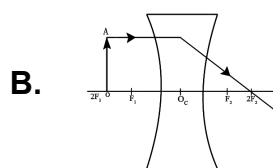
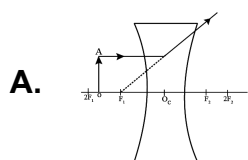
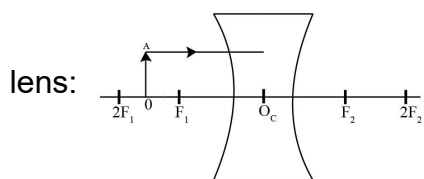


- A. 1
- B. 2
- C. 3
- D. 4
2. Which of the following mirrors can form a real image of an object?
- A. Convex
- B. Concave
- C. Plane
- D. All of the above

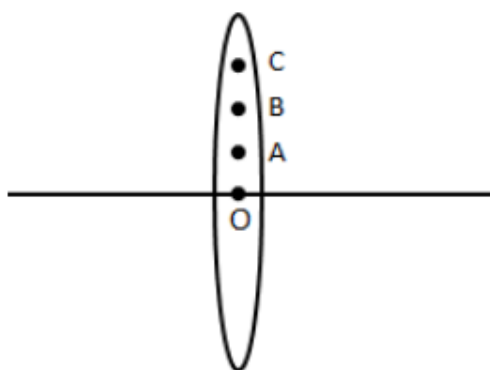
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3. Trace the correct path of the light ray after passing through the concave

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4. Towards which point should the incident light ray be directed, so that the ray passes undeviated?



**A.** A

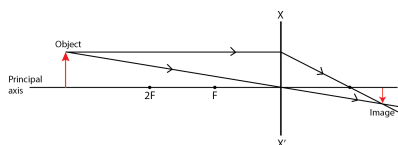
**B.** C

**C.** B

**D.** O

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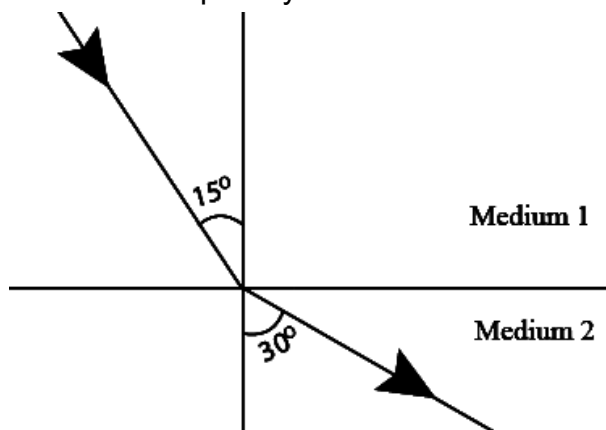
5. Identify the optical object  $XX'$  used based on the ray diagram shown.



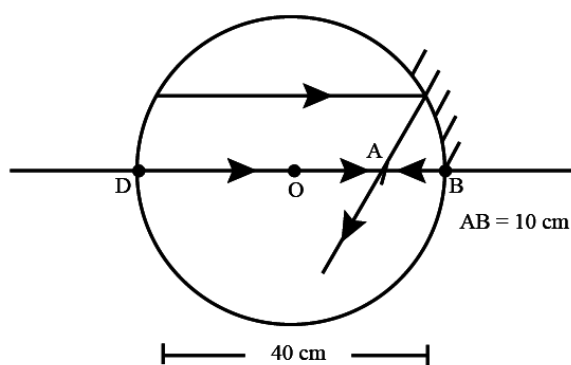
- A. Concave mirror
  - B. Convex mirror
  - C. Concave lens
  - D. Convex lens
6. The swimming pool appears to be less deep than it actually is. Which of the following phenomenon is responsible for this?
- A. Reflection of light
  - B. Diffusion of light
  - C. Refraction of light
  - D. Scattering of light
7. Refractive index of diamond is 2.42 and that of carbon disulphide is 1.63. Calculate refractive index of diamond with respect to carbon disulphide.
- A. 1.48
  - B. 0.67
  - C. 2.42
  - D. 1.63

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8. Choose the optically denser medium from the given figure:



- A. Medium 2
  - B. Medium 1
  - C. Both media have the same optical density
  - D. Cannot be determined
9. If  $AB = 10$  cm &  $DB = 40$  cm (diameter). What is the radius of curvature and the focal length of the spherical glass respectively?



- A. 40 cm, 10 cm
- B. 20 cm, 20 cm
- C. 40 cm, 5 cm
- D. 20 cm, 10 cm

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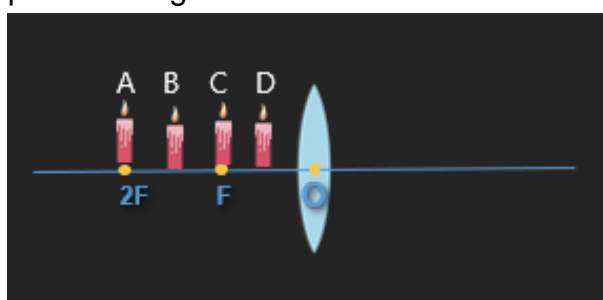
10. An object kept at  $20\text{ cm}$  from a spherical mirror gives rise to an image  $15\text{ cm}$  behind the mirror. The focal length of the mirror is:

- A.  $-60\text{ cm}$
- B.  $-30\text{ cm}$
- C.  $90\text{ cm}$
- D.  $60\text{ cm}$

11. An object is placed at a distance of  $10\text{ cm}$  from a concave mirror of radius of curvature  $0.6\text{ m}$ . Which of the following statement is incorrect?

- A. The image is formed at a distance of  $15\text{ cm}$  from the mirror.
- B. The image formed is real.
- C. The image is at  $1.5$  times the distance of the object.
- D. The image formed is virtual and erect.

12. Where should the candle be placed so that the convex lens produces positive magnification?



- A.  $A$
- B.  $B$
- C.  $C$
- D.  $D$

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13. A 3 cm high object is placed at a distance of 80 cm from a concave lens of focal length 20 cm. Find the size of the image formed.
- A. 0.1 cm
  - B. 0.4 cm
  - C. 0.2 cm
  - D. 0.6 cm
14. The power of a lens is -4 D. Find the focal length and type of the lens?
- A. 25 cm, convex lens
  - B. 25 cm, concave lens
  - C. 40 cm, concave lens
  - D. 40 cm, convex lens
15. Assertion (A) : Refractive index has no units.  
Reason (R) : Refractive index is ratio of two similar quantities.
- A. Both A and R are true and R is the correct explanation of A
  - B. Both A and R are true and R is not the correct explanation of A
  - C. A is true but R is false
  - D. A is False but R is true

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16. For a light ray passing from air to water, according to Snell's law:  
 ( $n$  represents refractive index of the medium,  $\theta_{air}$  is the angle of incidence and  $\theta_{water}$  is the angle of refraction)

- A.  $n_{air} \sin(\theta_{air}) = n_{water} \sin(\theta_{water})$
- B.  $n_{air} \sin(\theta_{water}) = n_{water} \sin(\theta_{air})$
- C.  $n_{air} \sin(\theta_{air}) = n_{water} \sin(\theta_{water}) = 1$
- D.  $n_{air} \sin(\theta_{water}) = n_{water} \sin(\theta_{air}) = 1$

17. A student focussed the image of a candle flame on a white screen using a lens. He noted down the position of the candle screen and the lens as mentioned below:

Position of candle = 12.0 cm

Position of lens = 50.0 cm

Position of the screen = 88.0 cm

- (i) What type of device is used?

- A. Convex lens
- B. Cconcave lens
- C. Plane mirror
- D. Glass slab

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18. A student focussed the image of a candle flame on a white screen using a lens. He noted down the position of the candle screen and the lens as mentioned below:

Position of candle = 12.0 cm

Position of lens = 50.0 cm

Position of the screen = 88.0 cm

(ii) What is the focal length of the lens used?

- A.** 12 cm
  - B.** 19 cm
  - C.** 22 cm
  - D.** 25 cm
19. A student focused the image of a candle flame on a white screen using a lens. He noted down the position of the candle screen and the lens as mentioned below:

Position of candle = 12.0 cm

Position of lens = 50.0 cm

Position of the screen = 88.0 cm

(iii) What is the nature of the image? Is it enlarged?

- A.** Virtual, Enlarged
- B.** Real, Enlarged
- C.** Real, Diminished
- D.** Real, Same size



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20. A student focussed the image of a candle flame on a white screen using a lens. He noted down the position of the candle screen and the lens as mentioned below:

Position of candle = 12.0 cm

Position of lens = 50.0 cm

Position of the screen = 88.0 cm

(iv) Nature of image if he shift the candle between 12 cm and 31 cm?

- A.** Inverted, Real, Diminished
- B.** Inverted, Real, Enlarged
- C.** Erect, Virtual, Diminished
- D.** Erect, Virtual, Enlarged