



PHYSICS

BOOKS - PEARSON IIT JEE

FOUNDATION

LIGHT

Example

1. Find the number of images formed by two mirrors whose reflecting surfaces intersect at

an angle of 60°



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2. Find the position of the image of an object placed at a distance of 12 cm from a convex mirror of focal length 10 cm.



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3. An object of height 2 cm is placed on a principal axis at a distance of 10 cm from the

pole of concave mirror. The image height is 5 cm. Find the image distance and the focal length of the concave mirror if the image is real and inverted.



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4. The velocity of light in first medium is $2.8 \times 10^8 \text{ m s}^{-1}$ and that in the second medium is $2.3 \times 10^8 \text{ m}^{-1}$. Find the refractive index of medium 2 with respect to medium 1.



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5. Find the velocity of light in a given medium.

The absolute refractive index of the medium is

1.5 (given velocity of light in vacuum or air =

$3 \times 10^8 \text{ m s}^{-1}$).



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6. A light ray incidents on an equilateral

triangle with an angle of 30° . Find the angle

of deviation of the emergent light ray if the

angle of emergence from the second surface is 70° .



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7. A long sighted person has least distance of distinct vision of 75 cm. What should be the focal length of the lens that is required for him to read a news paper at a distance of 25 cm?



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Test Your Concepts Very Short Answer Type Question

1. What is a divergent beam of light?



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2. What is an eclipse?



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3. Is it possible to have a magnified image with a concave mirror?



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4. The _____ telescope is used to observe distant objects on the earth's surface.



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5. What is total internal reflection of light ?

What are conditions for total internal reflection ?



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6. What is a luminous body?



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7. Define the focal length of a spherical mirror.



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8. An object appears _____ when viewed through a concave lens.



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9. State Snell's law.



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10. Define irregular reflection of light.



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11. What is magnification?



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12. Glow worm is an example of _____ source of light.

A. Natural

B. Artificial

C. Both A and B

D. None of these

Answer: A



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13. What are optical fibres?



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14. What is a translucent medium?



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15. Define the principal focus of a spherical mirror.



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16. What is the function of the ciliary muscles?

A. Control the shape of the lens

B. Control the amount of light

C. Help us to see in dark

D. Give colour to the eyes

Answer: A



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17. Formation of shadows is a consequence of
_____ light.

A. Refraction

B. Reflection

C. Dispersion

D. All of these

Answer: B



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18. Are the laws of refraction applicable to the refraction taking place at curved surfaces?



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19. What is a shadow?

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20. Define refraction.

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21. Define the principal focus of a lens.



22. Kaleidoscope works on the principle of _____ of plane mirrors.

- A. Reflection
- B. Refraction
- C. Joining
- D. None of these

Answer: A



23. Why is a concave lens called a diverging lens?



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24. Define refractive index.



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25. Why is a concave mirror called converging mirror ?



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26. Size of the image obtained by using a simple microscope is _____ than the size of the object.



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27. What is meant by the far point of the eye?



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28. What is the nature of the image of an object formed by a convex mirror?



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29. 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?



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Test Your Concepts Short Answer Type Question

1. Explain the principle of a photographic camera.



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2. Describe the construction and working of a periscope.



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3. Why does it take some time to see surroundings clearly in a dark cinema hall when a person enters from bright sunlight?



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4. Draw the ray diagrams to show the defective eye and the corrected eye for long sightedness.



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5. Why does the sky appear blue?



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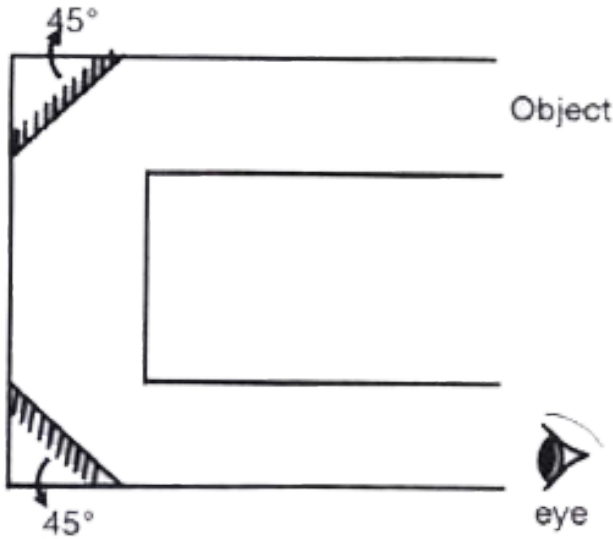
6. If a plane mirror and an object placed in front of it, both move towards each other by 10 cm, find the shift in the position of the image.



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7. A student has constructed a reflecting periscope by arranging two plane mirrors as shown in the figure. What is the nature of the image of an object viewed through this

periscope?



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8. Explain the rules for construction of ray diagrams for lenses.



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9. A thin single glass plate is transparent. If number of such glass plates are arranged in the form of a stack, is the arrangement still transparent? Explain.



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10. How does a concave lens help to correct the short sightedness in a person?



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11. Explain the formation of images by a concave mirror with the help of a ray diagram.



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12. In which of the following cases, a bright image is produced (1) the image formed by a concave mirror (2) the image formed by a convex lens (3) the image formed due to total internal reflection of light.



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13. Velocity of light in air is $3 \times 10^8 \text{ m s}^{-1}$ and of that in a given medium is $1.875 \times 10^8 \text{ m s}^{-1}$. Find the refractive index of the given medium.



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14. State the laws of reflection.



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Test Your Concepts Essay Type Question

1. Describe an experiment to find the focal length of a concave mirror and to find the nature of the image when the object is at finite distance.



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2. With a neat labelled diagram, explain the construction and working of a compound microscope.



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3. Describe an experiment to verify laws of reflection.



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4. What is a point source of light?



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5. Bring out the differences between myopia and hypermetropia.



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Concept Application Level 1 True Or False

1. Virtual images are formed by diverging rays.



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2. When a ray of light travels from water ($\mu = 4/3$) to glass ($\mu = 1.5$), it bends towards the normal.



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3. The size of the images produced by any mirror is of the same as that of the object.



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4. The focal length of a lens is same for all the colours in visible spectrum.



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5. The nearest point upto which an eye can see objects clearly is called near point of the eye.



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6. Transparent objects do not cast shadows.



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7. Rainbow formation is due to combined effect of refraction, total internal reflection and dispersion.



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Concept Application Level 1 Fill In The Blanks

1. A ray of light travelling in a medium of refractive index μ_1 is incident obliquely at the boundary of a medium of refractive index μ_2 . The ray may reflect back totally only when u_1 is _____ μ_2 .



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2. The size of the umbra region can be varied by varying the distance between the _____ , _____ and _____





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3. _____ helps in transmitting optical impulses to the brain.



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4. The portion of a mirror from which reflection of light actually takes place is _____



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5. Lateral displacement depends on _____ of the glass slab.



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6. The ratio of velocity of light in first medium to that of velocity of light in second medium is _____



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7. Irregular reflection _____ laws of reflection.



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Concept Application Level 1 Matching

1. Match the entries in Column A with the appropriate ones in Column B.

Column A		Column B	
A. Myopia	()	(a) Fire-fly	
B. Hypermetropia	()	(b) Linear magnification < 1	
C. Umbra	()	(c) Concave lens	
D. Penumbra	()	(d) Convex lens	
E. Total internal reflection	()	(e) Permanent image	
F. Telescope	()	(f) Magnification > 1	
G. Microscope	()	(g) Total darkness	
H. Camera	()	(h) House-fly	
I. Luminous body	()	(i) Mirage	
J. Non-luminous body	()	(j) (Partial) less darkness	



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Concept Application Level 1

1. When an object is moved away from a convex mirror, the image

- A. becomes smaller
- B. moves closer to the focus
- C. becomes inverted
- D. Both (a) and (b)

Answer: D



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2. Which among the following do you consider the reason for light to be travelling in a straight line?

A. its velocity is very high

B. bending effect is negligible, due to its small wavelength

C. it is not absorbed by atmosphere.

D. it consist of all wave lengths

Answer: B



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3. A man stands in front of a mirror and finds that his image is larger than himself. The mirror is a _____ mirror.

A. convex

B. concave

C. plane

D. Both (a) and (b)

Answer: B



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4. Total internal reflection may occur when light travels from _____

A. vacuum to air

B. water to glass

C. air to glass

D. glass to water

Answer: D



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5. Real images are formed by ____

- A. converging rays
- B. diverging rays
- C. Both (a) and (b)
- D. Neither (a) nor (b)

Answer: A



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6. Velocity of light in medium 1 is $2.4 \times 10^7 \text{ m s}^{-1}$ and velocity of light in medium 2 is $1.8 \times 10^7 \text{ m s}^{-1}$, then the refractive index of medium 2 with respect to medium 1 is

A. $\frac{3}{4}$

B. $\frac{4}{3}$

C. $\frac{1}{3}$

D. $\frac{1}{4}$

Answer: B



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7. A ray of light passing through the principal focus of a convex lens after refraction

- A. passes through the optic centre.
- B. emerges parallel to the principal axis.
- C. emerges without any deviation.
- D. None of these

Answer: B



8. The sun is seen before the actual sun rise because of _____

A. reflection

B. refraction

C. scattering of light

D. rectilinear propagation of light

Answer: B



9. In a convex lens, we get virtual image when the object is _____

- A. between F and 2F
- B. beyond 2F
- C. between F and optic center
- D. None of these

Answer: C



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10. When white light is incident on a hollow prism,

A. the light emerges from the prism and gives rise to spectrum

B. the light emerges giving no spectrum.

C. the light doesn't emerge from the prism and spectrum is not observed

D. the light emerges from the prism and gives spectrum, but all colours bend

towards the base.

Answer: B



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11. By using a concave mirror, image of a tree is focused on a screen. The distance between the screen and the mirror is _____

A. equal to radius of curvature of the mirror.

B. equal to half the radius of curvature of the spherical mirror.

C. equal to twice the focal length of the mirror.

D. equal to one fourth the focal length of the mirror.

Answer: B



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12. The object or image distance is taken as positive

A. if the length is measured opposite to the direction of the incident ray.

B. if the length is measured in the direction of the incident ray.

C. if the length is measured opposite to the direction of the refracted ray.

D. None of these

Answer: B



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13. The convex lens of larger focal length used in a compound microscope is called

- A. objective
- B. eye piece
- C. erector lens.
- D. None of these

Answer: A



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14. A concave mirror forms an erect image twice the size of a object. The object distance from the mirror is _____

A. $\frac{f}{2}$

B. $2f$

C. $\frac{3f}{2}$

D. $\frac{2f}{3}$

Answer: A



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15. If the real depth of a coin in water ($\mu = 4/3$) is 4 cm, the apparent depth is

A. 3 cm

B. $\frac{1}{3}$ cm

C. $\frac{16}{3}$

D. None of these

Answer: A



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16. Five spherical mirrors are made from the same sphere. The uncommon thing among the mirrors is _____

A. radius of curvature

B. focal length

C. pole

D. None of these

Answer: C



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17. When an extended source of light moves towards a stationary opaque body, where the extended source is bigger than the opaque body, then on a stationary screen placed behind the object the

A. penumbra and umbra, both increase.

B. penumbra and umbra, both decrease.

C. penumbra increases and the umbra decreases.

D. penumbra decreases and the umbra increases.

Answer: C



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18. A concave mirror produces a virtual, erect image when the object is _____

A. between F and C

B. at F

C. beyond C

D. between pole and F

Answer: D



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19. The heights of objects or images are taken as negative when they are measured

A. downwards, perpendicular to the principal axis.

B. along the direction of incident rays.

C. upwards, perpendicular to the principal axis.

D. None of these

Answer: A



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20. Arrange the following steps in sequential order to verify laws of reflection of light.

(A) Place a mirror on MM' and looking at the pins P and Q from the other side of the normal, observe their images.

(B) Fix a white paper to a drawing board and draw a straight line MM' and a line ON perpendicular to MM' on the paper.

(C) Fix two more pins P' and Q' in line with the images of the pins P and Q .

(D) Draw a line PO such that it makes suitable acute angle with the normal and fix two pins P

and Q on the line, which is the incident ray.

(E) Measure $\angle PON$, the angle of incidence and $\angle(P'ON)$, the angle of reflection.

(F) Remove the plane mirror and join P' and O. OP' is the reflected ray.

(G) Repeat the experiment for different angles of incidence and tabulate the results.

A. B A E C D F G

B. B D A C F E G

C. B A D C E F G

D. B D C E F A G

Answer: C



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21. Arrange the following steps of an experiment in sequential order to prove the rectilinear propagation of light.

(A) Place a lighted candle towards the wooden upright C facing the hole.

(B) The candle flame is clearly visible which would disappear if one of the uprights is moved.

(C) Take three wooden uprights A, B and C and make a small hole at the same height from the base on each of A, B and C such that they are in a straight line.

(D) Now, look through the hole of upright A.

A. C A D B

B. C D A B

C. A C B D

D. A D C B

Answer: A



22. Arrange the following steps of an experiment in sequential order to calculate the focal length of a concave mirror when the object is at a small distance.

(A) Mount a concave mirror on the mirror stand and place an object in front of it at a certain distance.

(B) Adjust the position of the screen and the mirror until a bright and sharp image is obtained on the screen.

(C) Measure the distance between the object and the mirror. This distance gives the object distance u .

(D) Place the screen between the object and mirror but not in line with them.

(E) Measure the distance between the concave mirror and the screen. This gives the image distance v .

(F) The focal length of the given concave mirror can be found out using the mirror formula with proper signs.

(G) Repeat the experiment for different values of u and v and tabulate the results.

A. A D B C E G F

B. A C E B D G F

C. A B C D E F G

D. A B D E C G E

Answer: A



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23. Long-sightedness is caused due to

A. eye ball being too short.

B. eye ball being too long.

C. the blind spot on the retina.

D. None of the above.

Answer: A



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24. If an object is placed at the principal focus of a convex lens, the image formed is real, inverted and

A. magnified

B. diminished

C. of same size as that of object

D. highly magnified.

Answer: D



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25. The image obtained by using a simple microscope is

A. real, erect and magnified.

B. virtual, erect and magnified.

C. virtual, inverted and magnified.

D. real, inverted and magnified.

Answer: B



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26. Just before the time of sunset the sun appears to be bigger because

A. sun changes its shape at that time.

B. of the scattering of light.

C. of the effect of refraction.

D. of reflection.

Answer: C



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27. Myopia is caused due to

A. the high diverging power of the eye lens.

B. the high converging power of the eye lens.

C. the blind spot on the retina.

D. None of the above

Answer: B



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28. Assertion (A): Convex mirrors are used as rear view mirrors in vehicles.

Reason:(R) : The field view of convex mirror is maximum and they form diminished images.

A. Both A and R are correct, and R is the correct explanation of A.

B. Both A and R are correct, but R is not the correct explanation of A.

C. A is correct but R is incorrect.

D. Both A and R are incorrect.

Answer: A



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29. Assertion (A): A rianbow is formed when white light is inincident on raindrops.

Reason (R): White light contains seven colours and it undergoes dispersion inside a raindrop.

A. Both A and R are correct, and R is the correct explanation of A.

B. Both A and R are correct, but R is not the correct explanation of A.

C. A is correct but R is incorrect.

D. Both A and R are incorrect.

Answer: A



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30. Read the following statements and choose the correct option.

(A) Only a point source forms a complete umbra.

(B) An extended source forms a complete umbra and penumbra.

A. Only A is true

B. Only B is true

C. Both A and B are true

D. Both A and B are false

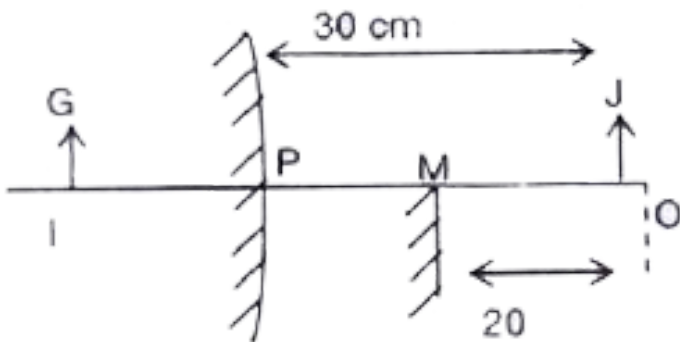
Answer: C



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Concept Application Level 2

1. A convex mirror and a plane mirror are arranged facing an object as shown in the figure below. If there is no parallax between the images formed by the two mirrors, then find the radius of curvature of the convex mirror?



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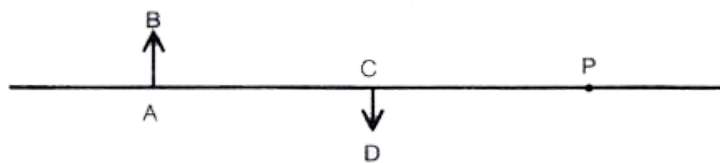
2. If a plane mirror shifts through a distance of 5 cm towards an object and the object shifts through 10 cm towards the mirror, then find the shift in the position of an image.



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3. In the given figure below, AB is the object and CD is its image. If a spherical mirror is used to get the image, name the type of spherical mirror used and locate the position of focus of the mirror by drawing a ray

diagram. 'P' is the pole of the mirror.



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4. Two convex lenses, of focal lengths 20 cm and 10 cm, respectively are separated by a distance of x cm. If a parallel beam of light remain parallel after refraction through both the lenses find x .



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5. Are all animals equally sensitive to same intensity of light? Explain.



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6. A jar contains two immiscible liquids A and B with a coin at its bottom. The depths of liquid A and liquid B are 6 cm and 8 cm, respectively. If the apparent depth of the coin is 9 cm and refractive index of liquid A is 1.5, what is the refractive index of liquid B?



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7. For a person sitting near a fire, why the objects like trees and houses on the other side of the fire appear shifting?



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8. An object is placed in front of a concave mirror and it produces a real image of magnification 1.5. If the object distance is

decreased by 5 cm, the magnification of the real image is increased to 4. Find the focal length of the concave mirror.



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9. A man places a rectangular glass slab of thickness 9 cm on a newspaper. On the top of the glass slab he places a glass beaker of negligible wall thickness containing water up to a height of 6 cm. If refractive index of glass

is 1.5 and refractive index of water is $(4/3)$,
what is the apparent depth of the newspaper?



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10. A source of light and screen are separated by a distance of 50 cm. A sharp image of the source is produced by lens when placed at two positions between the source and the screen. If the distance of separations of the lens between the two positions is 20 cm, find the focal length of the lens.



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11. Does an air bubble inside a water behave like a lens? If so, what type of lens is it? Explain?



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12. Two plane mirrors are inclined at an angle of 50° . A ray is incident on one of the mirrors with certain angle of incidence. The reflected ray from this mirror is incident on the second

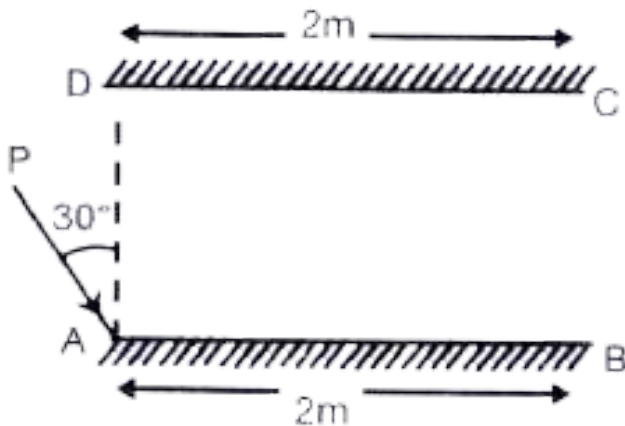
mirror such that it gets reflected parallel to the first mirror. Find the angle of incidence at the two mirrors. Also show that the sum of angles of incidence on first and second mirrors is equal to the angle of inclination between the two mirrors.



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13. Two plane mirrors AB and CD each of length 2 m are arranged parallel to each other $\sqrt{3}$ m apart and a ray of light is incident at 'A'

as shown in the figure. How many reflections does the ray of light undergo? What is the distance travelled by the ray of light between the two mirrors? What is the angle of deviation?



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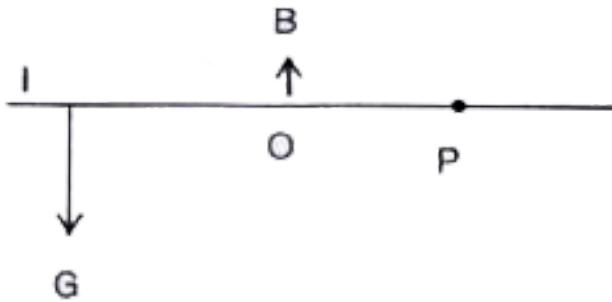
14. A concave mirror and a plane mirror are arranged facing each other and an object AB is placed between them as shown in the figure. What is the distance between the object and its inverted, virtual image formed in plane mirror?



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15. In the figure given below, OB is the object and IG is the image formed. A spherical mirror

with P as the pole of the mirror is used to form image IG. Identify the type of spherical mirror used and also locate the position of focus of the mirror using the ray diagram.



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16. If the mirror moves away from the object with speed v units, then find the speed of the

image that moves away from the object.



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17. Mahesh wanted to know whether the decrease in the number of images of an object placed between two mirrors would vary proportionally to the rate at which the angle between them increases. So, he arranged two plane mirrors facing each other in such a way that they were inclined at an angle of 5° . They were arranged such that the angle between

them increased uniformly at 1° per second.

What is his inference?



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18. Siddharth wanted to see his inverted image in a plane mirror. So, he stood between a concave mirror and a plane mirror facing each other as shown in the figure. Knowing the focal length of the concave mirror, he found the distance between him and his inverted

virtual image, formed in the plane mirror.

What is his answer?



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19. A concave mirror of focal length ' f ' forms an erect image twice the size of an object. Find the object distance from the mirror.



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20. Srikar focussed separately on two objects of different sizes using a photographic camera. He found that the sizes of the images of the two objects, one kept at a distance of 200 m and the other at a distance of 2 m is the same. How did he achieve this? Explain.



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Concept Application Level 3

1. A thin rectangular silver sheet acts as a plane mirror. A person who can see his face in it, holds it vertically, such that the length of the sheet is perpendicular to the ground. How does his image in the silver sheet change if the sheet is bent in a semi-circular way,

A. along the length such that it bulges towards the face.

B. along the length such that it bulges away from the face.

C. along the breadth such that it bulges towards the face.

D. along the breadth such that it bulges away from the face.

Answer:



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2. Objects in the mirror are closer than they appear'. This statement is printed on the rear

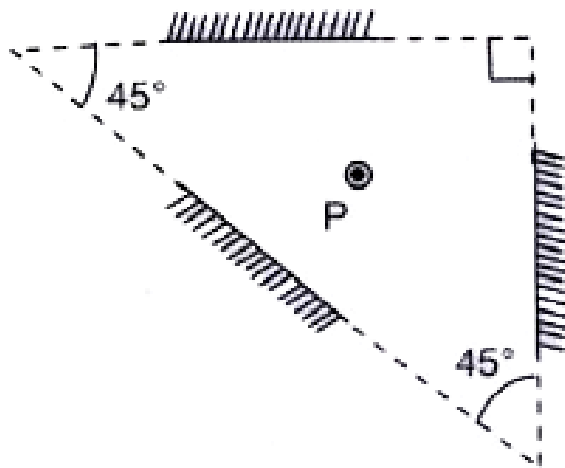
view mirrors of vehicles. What is its significance?



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3. Three plane mirrors are mounted on three walls forming an isosceles right triangle as shown in the figure. How many images are formed in all? Draw a diagram and indicate the

positions of the images.



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4. If v is the velocity of light in air or vacuum, find the time taken by the light to travel

through a glass slab of thickness x and having refraction index μ .



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5. Explain how an opaque paper can be made translucent.



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6. A ray of light changes its wavelength from 6000 \AA to 3000 \AA , when it travels from one

medium to another medium. What is the critical angle of the denser medium with respect to the rarer medium? [Given $\sin 0 = 0$,

$$\sin 30 = \frac{1}{2} , \sin 45 = \frac{1}{\sqrt{2}} , \sin 60 = \frac{\sqrt{3}}{2} , \sin$$

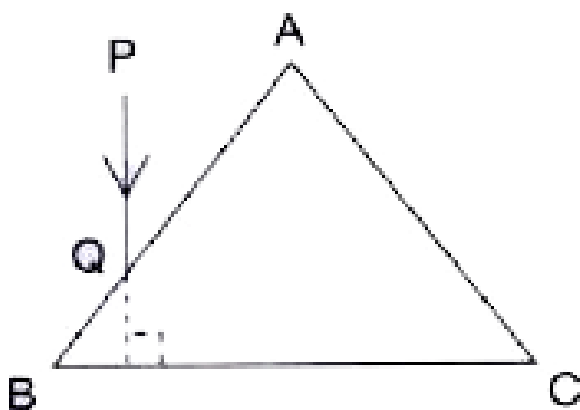
$90 = 1$]



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7. A ray of light PQ is incident on the face AB of an equilateral glass prism ABC as shown in the figure. Show that angle of emergence = angle of deviation. Also, with a ray diagram, trace the

path of the emergent ray.



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8. The face AC of the prism ABC of refracting angle 30° and refractive index square root 2 is silvered. A ray of light, after refraction from face AB, strike the face AC at 90° . Find the

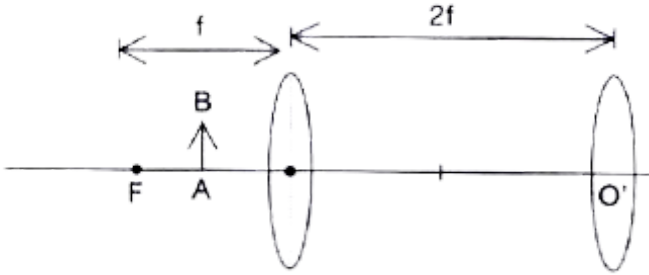
angle of incidence and path traced by the ray after reflecting from the silvered surface.



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9. An object AB is placed on the principal axis of two lenses of equal focal length (f). The lenses are separated by a distance $2f$, as shown in the figure. Using ray diagram locate the image formed by each lens and state their

nature.



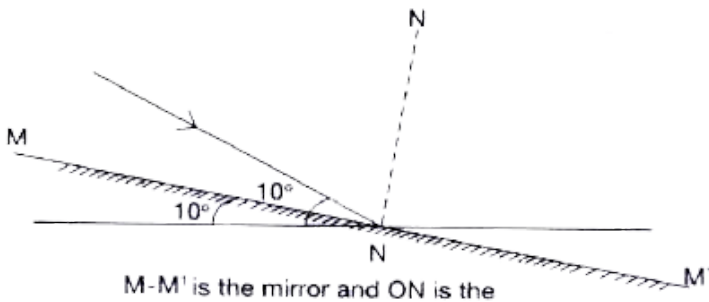
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10. An object 10 cm tall is placed on the principal axis of a concave lens of focal length 10 cm at a distance of 15 cm from it. Find the position and nature of the image formed by the lens and draw the ray diagram.



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11. A ray of light making an angle 50° with the horizontal is incident on a plane mirror, which itself is inclined to the horizontal at an angle 10° as shown in the figure. Determine the angle made by the reflected ray with the horizontal _____



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12. An object is placed in front of a convex mirror at a distance equal to the focal length of the mirror. If its focal length is 20 cm, the distance of the image from the mirror is _____ cm

A. 10

B. 20

C. 40

D. infinity

Answer:



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13. An object is first placed at a distance of 24 cm from the lens and then at a distance of 16 cm from the lens. If the magnification of the image formed in both the cases is same, determine the focal length of the lens



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14. In the spectrum of visible light which colour of light deviates the maximum?



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15. A convex mirror of radius of curvature 20 cm forms an image which is half the size of the object. Determine the position of the object from the pole of the mirror.



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Solved Example

1. Have you ever thought how can we see the various objects?



[Watch Video Solution](#)

2. How can you see an object in the dark?



[Watch Video Solution](#)

3. Does reflection take place if light falls on polished surface of mirror?



[Watch Video Solution](#)

4. What do you understand by rectilinear propagation of light?



[View Text Solution](#)

5. What do you understand by reflection of light?



[View Text Solution](#)

6. Do you think it is possible for us to see non-luminous objects present around us?



[View Text Solution](#)

7. What would happen if I threw the light on the mirror along the normal?



[Watch Video Solution](#)

8. What happens when the light hits the mirror?



[Watch Video Solution](#)

9. Explain why we cannot see our image on a wooden table or a book.



Watch Video Solution

10. Name any two surfaces which would cause diffuse reflection of light.



Watch Video Solution

11. If a ray of light incident on an opaque surface makes an angle of 30° with the mirror, what will be the angle of reflection of its corresponding reflected ray?



Watch Video Solution

12. Explain why we can see images on polished and smooth surfaces.



Watch Video Solution

13. What do you understand by virtual image.

Explain with examples.



Watch Video Solution

14. What is lateral inversion ?



Watch Video Solution

15. The image formed by a plane mirror is said to be laterally inverted. Why?





[Watch Video Solution](#)

16. State true (T) or false (F).

(a) A virtual image can be obtained on a screen.

(b) The image formed by a plane mirror is inverted.

(c) The image formed by a plane mirror is laterally inverted.



[Watch Video Solution](#)

17. Discuss two characteristics of image formed by plane mirror.



Watch Video Solution

18. How do you define an image?



Watch Video Solution

19. How does mirror form an image of the object?



[Watch Video Solution](#)

20. Do we see all objects due to reflected light? Explain why?



[Watch Video Solution](#)

21. How many mirrors are used to make a kaleidoscope?



[Watch Video Solution](#)

22. How many images of an object will you obtain if you place the object between two plane mirrors making an angle of 20° with each other?



Watch Video Solution

23. Mention any one use of plane mirrors.



Watch Video Solution

24. Give two uses of periscopes.



Watch Video Solution

25. Explain the phenomenon of multiple reflection in brief.



Watch Video Solution

26. How many images are formed when two plane mirrors are placed parallel to each

other?



Watch Video Solution

27. Explain why you can see the back of your head at the hairdresser's shop?



Watch Video Solution

28. Why do salons have parallel mirrors?



Watch Video Solution

29. Why our pupils contract when a doctor shines a torch in our eyes during a check-up?



Watch Video Solution

30. Why does pupil always appear black?



Watch Video Solution

31. Discuss the function of iris.



Watch Video Solution

32. Give two functions of eyelashes.



Watch Video Solution

33. What is vitreous fluid?



Watch Video Solution

34. Under what condition, an image formed on this part of the retina cannot be detected by

the brain?



[Watch Video Solution](#)

35. Explain how our eyes can detect both nearby and faraway objects.



[Watch Video Solution](#)

36. What do you understand by persistence of image?



[Watch Video Solution](#)

37. Give any one example of electronic aids available for the visually challenged.



Watch Video Solution

38. How many dot patterns is the Braille system composed of?



Watch Video Solution

39. Name the region where the retina meets the optic nerve and does not contain any rods or cones.



Watch Video Solution

40. Name the pair of muscles that hold the eye lens at its position and adjust it to see objects at different distances.



View Text Solution

41. Name the following:

(a) The opaque muscular structure in front of the eye lens that controls the amount of light that enters the eye.

(b) A type of tactual aid that uses patterns of dots embossed on sheets to help people read.



Watch Video Solution

42. What happens when a person is suffering from myopia?



View Text Solution

43. What do you mean by least distance of distinct vision?



View Text Solution

Track Your Learning I

1. Which of the following is a non-luminous object?

A. Sun

B. Stars

C. Earth

D. Firefly

Answer: C



Watch Video Solution

2. Which of the following is an imaginary line or point in relation to reflection of light from a surface?

A. Point of incidence

B. Normal

C. Reflected ray

D. Incident ray

Answer: B



Watch Video Solution

3. The objects which emit their own light are called _____

- A. Luminous object
- B. Non-luminous object
- C. Reflected object
- D. None of them

Answer: A



Watch Video Solution

4. In law of reflection, the incident light is reflected in directions.

A. Opposite

B. Different

C. Same

D. None

Answer: B



Watch Video Solution

5. In _____ reflection, rays of light falling on different parts of the rough surface strike at different angles of incidence.

A. Regular

B. Specular

C. Diffuse

D. None

Answer: C



Watch Video Solution

6. The angle of incidence is always equal to the angle of _____

A. Refraction

B. Reflection

C. Incident

D. None of these

Answer: B



Watch Video Solution

Track Your Learning li

1. A _____ is a flat, smooth reflective surface.

A. Spherical mirror

B. Plane mirror

C. Inverted mirror

D. All of these

Answer: B



Watch Video Solution

2. The distance of the image formed inside a _____ is the same as the distance of the object from the mirror.

A. Spherical mirror

B. Plane mirror

C. Inverted mirror

D. All of these

Answer: B



Watch Video Solution

3. The change in the sides of an object and its mirror image is called _____.

A. Virtual image

B. Real image

C. Lateral inversion

D. Plane mirror

Answer: C



Watch Video Solution

4. An image that cannot be obtained on a screen is called _____ .

A. Real image

B. Virtual image

C. Lateral inversion

D. No image

Answer: B



Watch Video Solution

5. The distance of the image from the mirror is _____ as/ the distance of the object from the mirror.

- A. Lesser than
- B. Greater than
- C. Same
- D. Different

Answer: C



Watch Video Solution

6. The image formed by a plane mirror is upright or _____.

A. Erect

B. Same

C. Real

D. Inverted

Answer: A



Watch Video Solution

Track Your Learning Iii

1. _____ also serve a useful purpose in solar cookers, as they reflect sunlight into the cooker helping to cook food faster.

- A. Periscopes
- B. Kaleidoscope
- C. Spherical mirror
- D. Plane mirrors

Answer: D



Watch Video Solution

2. The main use of a _____ is to view objects present at a height different from the eye level of an observer.

- A. Periscopes
- B. Spherical mirror
- C. Plane mirrors
- D. Kaleidoscope

Answer: A



[View Text Solution](#)

3. When two plane mirrors are placed at an angle to each other, more than one image of an object is obtained. This is known as the phenomenon of _____

- A. Law of reflection
- B. Law of refraction
- C. Multiple reflections
- D. Lateral inversion

Answer: C



View Text Solution

4. A _____ is a toy that is constructed using the principle of multiple reflections.

- A. Periscope
- B. Kaleidoscope
- C. Plane mirror
- D. None of these

Answer: B



View Text Solution

5. _____ is mainly used in submarines to view objects present above the surface of water.

- A. Periscope
- B. Kaleidoscope
- C. Plane mirror
- D. All of them

Answer: A



Watch Video Solution

6. _____ is also used in instruments such as periscopes and kaleidoscopes,

- A. Spherical mirror
- B. Plane mirror
- C. Polished mirror
- D. Multiple reflection

Answer: B



Watch Video Solution

Track Your Learning Iv

1. The phenomenon of is utilized in the making of motion pictures.

A. Power of accommodation

B. Persistence of vision

C. Farthest vision

D. Braille system

Answer: B



Watch Video Solution

2. The Braille system uses uses _____ different dot patterns, where each pattern consists of dots arranged in a grid of two columns and three rows.

A. 70

B. 63

C. 72

D. 56

Answer: B



Watch Video Solution

3. In the eye lens becomes cloudy, which leads to gradual loss of vision.

A. Myopia

B. Cataract

C. Hypermetropia

D. Cyst

Answer: B



Watch Video Solution

4. What is 'white of eye'?

A. Sclera

B. Cornea

C. Iris

D. Eye ball

Answer: A



Watch Video Solution

5. It is the _____ that gives our eye its colour.

A. Iris

B. Cornea

C. Sclera

D. Vitreous humor

Answer: A



Watch Video Solution

6. The _____ is a transparent hole through which light enters our eyes.

A. Iris

B. Cornea

C. Sclera

D. Pupil

Answer: D



Watch Video Solution

7. The eye lens focuses light falling on it onto a light-sensitive screen present at the back of the eye called the _____

A. retina

B. pupil

C. sclera

D. cornea

Answer: A



Watch Video Solution

8. The space between the lens and the retina is filled with a liquid called _____.

A. aqueous humour

B. vitreous humour

C. optic nerves

D. ciliary muscles

Answer: B



Watch Video Solution

Hots Higher Order Thinking Skills

1. When we look at a dark room for some time, we start making out the shapes of different objects present in the room. Give the reason

for the following questions.

(a) How does this happen?

(b) What do you think would happen to the pupils of a person looking at objects in a dark room? Why would this happen to the pupils?

(c) When we start seeing different objects in a dark room, we are often not able to recognize the colours of these objects. Why does this happen?



Watch Video Solution

2. Which of the principal a periscope is based on? Explain.



Watch Video Solution

3. Why does it take some time to see surroundings clearly in a dark cinema hall when a person enters from bright sunlight?



Watch Video Solution

4. Why we cannot see our image in the mirror in complete dark room ?



Watch Video Solution

5. Moon appears bright at night. Is it a luminous or non-luminous body ?



Watch Video Solution

6. How will you convert a glass sheet into a translucent sheet ?



[Watch Video Solution](#)

7. What is the function of rods and cones in our eye?



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Classroom Corner A Very Short Answer Type Questions Multiple Choice Questions

1. The transparent, jelly-like fluid present inside the eye ball is called _____.

A. sclera

B. retina

C. vitreous humour

D. pupil

Answer: C



Watch Video Solution

2. Surfaces which cause diffuse reflection

- A. Plane mirror
- B. Still water in a lake
- C. Clean, polished steel plate
- D. Wooden bark of a tree

Answer: D



Watch Video Solution

3. Angle of reflection is _____

A. Angle between the normal and the incident ray

B. Angle between the normal and the reflected ray

C. Angle between the incident ray and the reflected ray

D. Angle between the reflected ray and the surface of the mirror

Answer: B



Watch Video Solution

4. Which of these is a non-optical aid for visually challenged individuals?

A. Bifocal lenses

B. Contact lenses

C. Telescopic aid

D. Audio books

Answer: D



Watch Video Solution

5. Angle of incidence is equal to the angle of reflection.

A. Always

B. Sometimes

C. Under special condition

D. Never

Answer: A



Watch Video Solution

6. Image formed by a plane mirror is

- A. virtual, behind the mirror and enlarged.
- B. virtual, behind the mirror and of the same size as the object.
- C. real at the surface of the mirror and enlarged.
- D. real, behind the mirror and of the same size as the object.

Answer: B



Watch Video Solution

7. Objects which do not produce any light of their own are called _____ objects.

A. non-luminous

B. luminous

C. inverted

D. real

Answer: A



Watch Video Solution

8. An image formed due to the actual joining of light rays at some point in space is called a _____ image.

A. Inverted

B. Real

C. Elongated

D. Virtual

Answer: B



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9. A hypothetical line which is drawn perpendicular to an opaque surface, at the point of incidence of a ray of light, is called the _____ at the point of incidence.

A. Normal

B. Reflected

C. Refracted

D. Incident

Answer: A



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10. The property of the image formed by a plane mirror, due to which the left and right sides of the image are the reverse of the left and right sides of the object, is called _____

- A. Reflection
- B. refraction
- C. Lateral inversion
- D. Incidence

Answer: C



Watch Video Solution

11. A _____ is an instrument that is based on the principle of multiple reflections and is used in submarines.

- A. Kaleidoscope
- B. Periscope
- C. Lateral inversion
- D. None of them

Answer: B



Watch Video Solution

12. The white outer wall of the eye is called

A. Cornea

B. Iris

C. Pupil

D. Sclera

Answer: D



Watch Video Solution

13. The iris controls the amount of light entering the eye by contracting and dilating the _____

A. Iris

B. Eye lids

C. Pupil

D. Sclera

Answer: C



Watch Video Solution

14. Rods are sensitive to _____ light , while cones are sensitive to _____ light.

A. Bright, bright

B. Dim, bright

C. Bright, dim

D. Dim , dim

Answer: B



Watch Video Solution

15. Braille system is a type of _____ aid because it uses the sense of touch.

A. Tactual

B. Virtual

C. Visual

D. Auditory

Answer: A



Watch Video Solution

16. The sun is seen even after the actual sunset because of _____

A. reflection

B. refraction

C. scattering of light

D. rectilinear propagation of light

Answer: B



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17. Long-sightedness is caused due to

- A. eye ball being too short.
- B. eye ball being too long.
- C. the blind spot on the retina.
- D. None of the above.

Answer: A



Watch Video Solution

18. If an object is placed at the principal focus of a convex lens, the image formed is real, inverted and

A. magnified

B. diminished

C. of same size as that of object

D. highly magnified.

Answer: D



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19. Just before the time of sunset the sun appears to be bigger because

A. sun changes its shape at that time.

B. of the scattering of light.

C. of the effect of refraction.

D. of reflection

Answer: C



20. Myopia is caused due to

A. the high diverging power of the eye lens.

B. the high converging power of the eye lens.

C. the blind spot on the retina.

D. None of the above

Answer: B



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21. What are the laws of reflection?

(i) The angle of incidence is equal to the angle of reflection, and

(ii) The incident ray, the normal to the mirror at the point of incidence and the reflected ray, all lie in the same plane.

(iii) Incident ray is equal to emergent ray.

(iv) Reflected ray is equal to emergent ray.

A. (i) and (ii)

B. (i) and (iv)

C. (i), (ii) and (iv)

D. All the above

Answer: A



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22. ___ controls the intensity of light entering our eye

A. ciliary muscles

B. cornea

C. optic nerve

D. iris

Answer: D

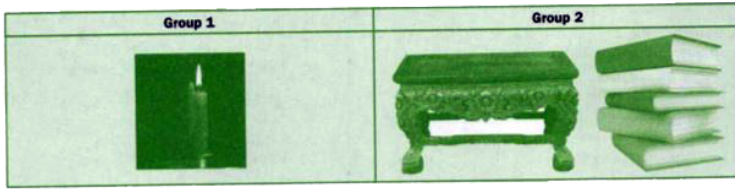


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Classroom Corner A Very Short Answer Type Questions Comprehension Based Questions

1. Look at the pictures given below. How are the pictures in group 1 different from the

pictures in group 2?

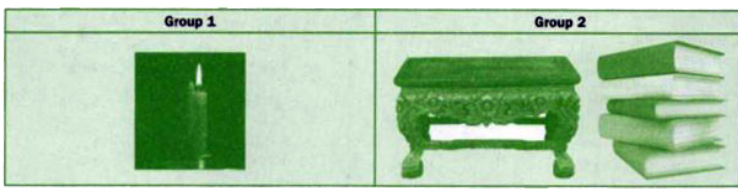


Which form of energy is being talked about here?



[View Text Solution](#)

2. Look at the pictures given below. How are the pictures in group 1 different from the pictures in group 2?



How is this form of energy useful to us?



[View Text Solution](#)

3. Look at the pictures given below. How are the pictures in group 1 different from the pictures in group 2?

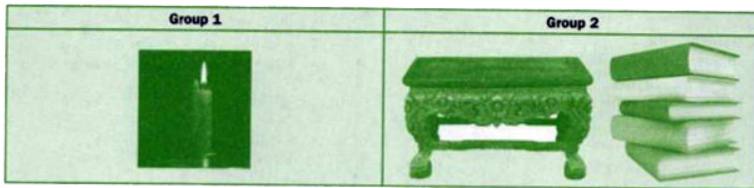


Give two example of luminous objects.



[View Text Solution](#)

4. Look at the pictures given below. How are the pictures in group 1 different from the pictures in group 2?



Explain why Moon is non - luminous in nature.



[View Text Solution](#)

Classroom Corner A Very Short Answer Type Questions Subjective Type Questions

1. Arjun has a kaleidoscope. He wants to increase the number of images his kaleidoscope forms to make it more entertaining. How can he accomplish this?



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2. If you placed a screen such as a sheet of paper or a stretched piece of cloth behind the

mirror, would you be able to obtain an image of object at point O on it?



[Watch Video Solution](#)

3. When you bend the paper you create a plane different from the plane in which the incident ray and the normal lie, then you do not see the reflected ray. What does it indicate?



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4. Discuss why in diffuse reflection, reflected rays with varying angles of reflection are scattered out in all directions.



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5. Do we see all objects due to reflected light?

Explain why?



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6. The objects which shine in the light of other objects are called illuminated objects. Can you name some other objects.



Watch Video Solution

7. Why does pupil always appear black?



Watch Video Solution

8. Explain why a virtual image cannot be obtained on a screen.



Watch Video Solution

9. Gurmit wanted to perform Activity 16.8 using a laser torch. Her teacher advised her not to do so. Can you explain the basis of the teacher's advice?



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10. What is the angle of incidence of a ray if the reflected ray is at an angle of 90° to the incident ray?



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11. How many images of a candle will be formed if it is placed between two parallel plane mirrors separated by 40 cm?



Watch Video Solution

12. How will you prove that the angle of incidence is equal to the angle of reflection?



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13. Define angle of incidence and angle of refraction.



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Classroom Corner A Very Short Answer Type Questions Assertion Reason Type Questions

1. Assertion: Large convex mirrors are used to concentrate sunlight to produce heat in solar :yes always cooker.

Reason: Concave mirrors converges the light rays falling on it.

A. If both assertion and reason are true and reason is the correct explanation of assertion.

B. If both assertion and reason are true but reason is not the correct explanation of

assertion.

C. If assertion is true but reason is false.

D. If both assertion and reason are false.

Answer: D



View Text Solution

2. Assertion: Dentists make use of concave mirror to view the magnified image of teeth.

Reason: A concave mirror is more cost effective available.

A. If both assertion and reason are true and reason is the correct explanation of assertion.

B. If both assertion and reason are true but reason is not the correct explanation of assertion.

C. If assertion is true but reason is false.

D. If both assertion and reason are false.

Answer: C



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3. Assertion: Dispersion of light occurs because velocity of light in a material depends upon its colour

Reason: If we shine the primary colours red, blue, and green together, we will get white De formed if light.

A. If both assertion and reason are true and reason is the correct explanation of assertion.

B. If both assertion and reason are true but reason is not the correct explanation of assertion.

C. If assertion is true but reason is false.

D. If both assertion and reason are false.

Answer: C



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4. Assertion: A convex lens is used as simple magnifying glass.

Reason: When the object is kept very close to convex lens, we get magnified and erect image.

A. If both assertion and reason are true and reason is the correct explanation of assertion.

B. If both assertion and reason are true but reason is not the correct explanation of assertion.

C. If assertion is true but reason is false.

D. If both assertion and reason are false.

Answer: A



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Classroom Corner B Short Answer Type Questions

1. When we look at a dark room for some time, we start making out the shapes of different

objects present in the room. Give the reason for the following questions.

(a) How does this happen?

(b) What do you think would happen to the pupils of a person looking at objects in a dark room? Why would this happen to the pupils?

(c) When we start seeing different objects in a dark room, we are often not able to recognize the colours of these objects. Why does this happen?



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2. Can you explain how reflection from the two mirrors enables you to see objects which are not visible directly?



Watch Video Solution

3. Can the reflected rays be further reflected if incident on another mirror? Comment.



Watch Video Solution

4. If a person is shown a series of pictures at the rate of 8 pictures per second, will his/her mind perceive them as individual pictures or as one moving picture? Give a reason for your answer.



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5. State the laws of reflection.

First law of reflection:

Second law of reflection:



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6. Explain the following terms.

(a) Cataract

(b) Point of incidence

(c) Multiple reflections



[Watch Video Solution](#)

7. State the characteristics of the image formed by a plane mirror.



[Watch Video Solution](#)

8. Write the uses of plane mirror in our daily life.



[Watch Video Solution](#)

9. Suggest any three ways to take care of the eyes.



Watch Video Solution

10. Explain how the Braille system is used to help visually challenged people?



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11. What is multiple reflection How can you view your hairstyle at the back of your head?



[Watch Video Solution](#)

12. Draw a diagram showing the formation of the image of an object placed in front of a plane mirror.



[Watch Video Solution](#)

13. Explain why we cannot see our image on a wooden table or a book.



[Watch Video Solution](#)

14. Discuss we feel strain in our eyes if we watch television or read a book from a very close distance?



Watch Video Solution

15. We cannot see a non-luminous object without the presence of a source of light around it. Discuss why?



Watch Video Solution

16. When we look at an object, an inverted diminished image of an object is formed on the retina of our eye. However, we see objects upright and of the appropriate size. How does this happen?



Watch Video Solution

17. Some animals such as owls have better vision than us in the dark. Which component

of their eyes must be different from that of humans for them to possess this quality?



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18. A board with the word MIRROR written on it is placed 3 m in front of a plane mirror. Give the answer for below questions.

(a) If the angle of incidence of an incident ray falling on the plane mirror is 35° what will be angle between the incident and the reflected rays?

(b) What will be the distance of the word MIRROR written on the board from its image inside the plane mirror?

(c) How will the image of the word MIRROR appear inside the plane mirror?



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19. Defects of vision such as myopia and hypermetropia are corrected by the use of appropriate optical lenses. Find out more about these corrective lenses



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20. Discuss the below points:

(a) Image

(b) Diffuse reflection

(c) Persistence of vision



[Watch Video Solution](#)

21. Suppose you are in a dark room. Can you see objects in the room? Can you see objects outside the room? Explain.



[Watch Video Solution](#)

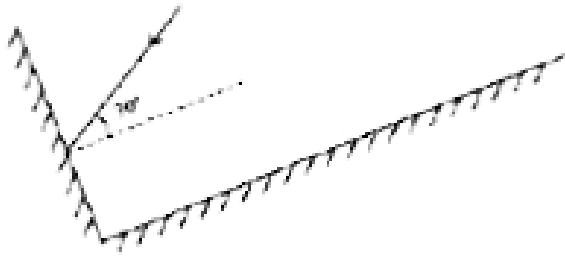
22. Differentiate between regular and diffused reflection. Does diffused reflection mean the failure of the laws of reflection?



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23. Two mirrors meet at right angles. A ray of light is incident on one at an angle of 30° as shown in Draw the reflected ray from the

second mirror.



[Watch Video Solution](#)

24. Give the ray diagram showing reflection of light



[Watch Video Solution](#)

25. Fill in the blank in

A person 1 m in front of a plane mirror seems to be _____m away from his image.



Watch Video Solution

26. Fill in the blank in

If you touch your _____ear with your right hand in front of a plane mirror, it will be seen in the mirror that your right ear is touched with your_____





[Watch Video Solution](#)

27. Fill in the blank in

The size of the pupil becomes _____ when you see in dim light.



[Watch Video Solution](#)

28. How should we care our eyes? Write any three.



[Watch Video Solution](#)

29. What is the nature of image formed on the retina of human eye of an object?



Watch Video Solution

Classroom Corner C Long Answer Type Questions

1. Explain how our eyes can detect both nearby and faraway objects.



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2. Explain the process of image formation in the human eye. Explain with the help of diagram.



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3. If a candle of length 10 cm is placed 2 m away from the front of a plane mirror, find the length of the image of the candle formed in the mirror. Also, find the distance of the image from the object (candle).



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4. Discuss what do you understand about the nature of images formed inside a plane mirror. With the help of a diagram.



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5. Do you think it is important for the mirrors to be placed at 45° to the vertical in a periscope? Why or why not?



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6. Why is the word AMBULANCE written in reverse in front of ambulance vans?



[Watch Video Solution](#)

7. Give an account of the structure of human eye.



[Watch Video Solution](#)

8. What is regular and diffused reflection? Give the diagram.



Watch Video Solution

9. Explain why we can see images on polished and smooth surfaces.



Watch Video Solution

10. Answer these questions.

(a) Raman suffers from night-blindness. Which particular component of his eyes could be deficient/malfunctioning? Support your answer with suitable reasons.

(b) Mehak suffers from colour blindness. Which particular component of her eyes could be deficient/malfunctioning? Give reasons for your answer.



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11. Draw a diagram showing the multiple reflections of an object placed in front of two mirrors.



[Watch Video Solution](#)

12. Fill the boxes given below with examples of any five luminous and non-luminous objects each.

Luminous objects	Non-luminous objects



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13. Mention against each of the following regular or diffused reflection will take place when a beam of light strikes. Justify your answer in each case.

(a) Polished wooden table

(b) Chalk powder

(c) Card board surface

(d) Marble floor with water spreads over it.

(e) Mirror



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14. Describe an activity to show that the incident ray, the reflected ray and the normal at the point of incidence lie in the same plane.



Watch Video Solution

15. Describe the construction of a kaleidoscope.



Watch Video Solution

1. Which path is followed by light while traveling in a medium?

- A. Circular
- B. Parabolic
- C. Rectilinear
- D. Cylindrical

Answer: C



Watch Video Solution

2. Which of the following objects is a non-luminous object?

A. Bulb

B. Spoon

C. Candle

D. Torch

Answer: B



Watch Video Solution

3. Which is an optical aid for people who suffer from partial loss of vision?

- A. Bifocal lens
- B. Braille system
- C. Talking watch
- D. Cassette

Answer: A



Watch Video Solution

4. Which of these is an example of electronic aid?

A. Bifocal lens

B. Telescope

C. Contact lens

D. Talking watches

Answer: D



Watch Video Solution

5. How many different dot patterns are used in Braille system?

A. 26

B. 52

C. 63

D. 74

Answer: C



Watch Video Solution

6. Which type of aid is the Braille system?

A. Auditory aid

B. Visual aid

C. Tactual aid

D. Optical aid

Answer: C



View Text Solution

7. What is the defect called in which a person can comfortably see distant objects, but nearby objects are not visible clearly?

A. Myopia.

B. Cataract

C. Hypermetropia

D. Red eye

Answer: C



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8. What is the least distance of distinct vision?

A. 10 cm

B. 15 cm

C. 20 cm

D. 25 cm

Answer: D



Watch Video Solution

9. How long an image stays on retina after the object is removed?

A. $1/16^{th}$ of a second

B. $1/10^{th}$ of a second

C. $1/5^{th}$ of a second

D. $1/3^{th}$ of a second

Answer: A



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10. What type of image is formed on the retina?

- A. Virtual and inverted
- B. Real and inverted
- C. Vertically inverted image
- D. Real and erect

Answer: B



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11. Which part of the eye controls the amount of light entering the pupil?

A. Sclera

B. Iris

C. Eye lens

D. Cornea

Answer: B



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12. Why does pupil always appear black?

A. It does not allow light to pass.

B. It does not reflect light.

C. It has no cones cells.

D. It has no rods cells.

Answer: B



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13. Which part allows light to enter the eye ?

A. Retina

B. Cornea

C. Iris

D. pupil

Answer: D



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14. Which of these protects the inner part of the eye?

A. Scleara

B. Iris

C. Eye lens

D. Cornea

Answer: A



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15. How many images will be formed if the angle between two mirrors is 60° ?

A. Two

B. Three

C. Five

D. Seven

Answer: C



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16. How are mirrors arranged in a kaleidoscope?

A. Perpendicular to each other

B. Parallel to each other

C. In triangular shape

D. In circular shape

Answer: C



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17. How many images are formed when two plane mirrors are placed parallel to each other?

A. One

B. Three

C. Seven

D. Infinite

Answer: D



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18. Which of the following works on the concept of multiple reflections?

A. Telescope

B. Periscope

C. Binoculars

D. Kaleidoscope

Answer: D



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19. What are real and virtual images ? How will you find out whether an image is real or

virtual ? Can a virtual image be obtained on a screen ?

- A. Can be obtained on the screen
- B. Cannot be obtained on the screen
- C. Vertically inverted image
- D. Enlarged image

Answer: B



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20. An arrow pointing towards the right is placed in front of a mirror. In which direction will the arrow appear to point in the image?

A. Left

B. Right

C. Up

D. Down

Answer: A



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21. A toy car is placed at 15 cm in the front of the plane mirror. What is the distance of the image from the mirror?

A. 15 cm

B. 45 cm

C. 30 cm

D. 60 cm

Answer: A



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22. A candle of height 30 cm is placed in front of the mirror. What will be the height of its image?

A. 15 cm

B. 30 cm

C. 45 cm

D. 10 cm

Answer: B



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23. What is the shape of the plane mirror?

A. Flat

B. Spherical

C. Inward curved

D. Outward curved

Answer: A



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24. An Image which can be obtained on a screen is called a _____ image.

A. Irregular

B. Virtual

C. Real

D. Inverted

Answer: C



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25. Which property of plane mirror makes 'right appear as left' and vice versa?

- A. Vertical Inversion
- B. Lateral Inversion
- C. Regular Reflection
- D. Diffuse Reflection

Answer: B



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26. Image formed by a plane mirror is

- A. Real and inverted
- B. Virtual and laterally inverted
- C. Virtual and upside down
- D. Real and opposite

Answer: B



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27. Which of the following can produce a regular reflection?

A. Cloth

B. Newspaper

C. Towel

D. Metal plate

Answer: D



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28. Which of the following decides the type of reflection?

A. Difference in the type of surface

B. Difference in the type of incident light

C. Difference in size of the normal

D. Difference in the type of reflected light

Answer: A



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29. Which type of surface causes diffused reflection?

A. Reflective surface

B. Opaque surface

C. Rough surface

D. Smooth surface

Answer: C



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30. In a regular reflection, the incident parallel rays have ____.

- A. a large angle of incidence
- B. a small angle of incidence
- C. different angle of incidence
- D. equal angle of incidence

Answer: D



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31. What angle does a normal make with the opaque surface?

A. 45°

B. 90°

C. 60°

D. 100°

Answer: B



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32. If the angle of incidence of a ray is 15° , then what will be the angle of reflection?

A. 60°

B. 45°

C. 30°

D. 15°

Answer: D



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33. The angle between the incident ray and normal ray is called angle of_____.

A. reflection

B. incidence

C. transmission

D. propagation

Answer: B



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34. What is angle of reflection?

- A. The angle between normal and surface.
- B. The angle between normal and reflected ray.
- C. The angle between reflected ray and surface.
- D. The angle between incident ray and reflected ray.

Answer: B



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35. WHAT MAKES THINGS VISIBLE/?

A. Reflection of light

B. Production of light .

C. Propagation of light

D. Absorption of light

Answer: A



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36. Which property of light is defined by the state ment “Light travels in the straight line”?

- A. Straight propagation of light
- B. Rectilinear propagation of light
- C. Unidirectional propagation of light
- D. Linear propagation of light

Answer: B



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37. Which of the following objects is a non-luminous object?

A. Object that produce light

B. Object that absorb light

C. Object that do not produce light

D. Object that reflect light

Answer: C



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38. Which of the following is a luminous body?

A. Fire

B. Moon

C. Mirror

D. Earth

Answer: A



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39. Which of the following is an imaginary line or point in relation to reflection of light from a surface?

A. Point of incidence

B. Normal

C. Reflected ray

D. Incident ray

Answer: B



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40. Which of the following is a non-luminous body?

A. Sun

B. Stars

C. Earth .

D. Firefly

Answer: C



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41. Which of these is a non-optical aid for visually challenged individuals?

A. Bifocal lenses

B. Contact lenses

C. Telescopic aid

D. Audio books

Answer: D



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42. Which of the following is called the angle of reflection?

A. Angle between the normal and the incident ray.

B. Angle between the normal and the reflected ray.

C. Angle between the incident ray and the reflected ray.

D. Angle between the reflected ray and the surface of the mirror.

Answer: B



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43. Which of the following surfaces would result in diffuse reflection?

A. Plane mirror

B. Still water in a lake

C. Clean, polished steel plate

D. Wooden bark of a tree

Answer: D



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44. Assertion : Aqueous humor is a transparent gel like fluid.

Reason : Vitreous humor contains a thin watery fluid.

A. sclera

B. retina

C. vitreous humour

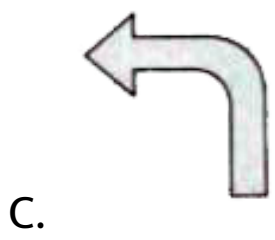
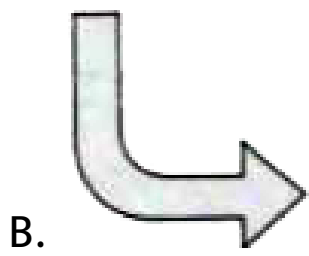
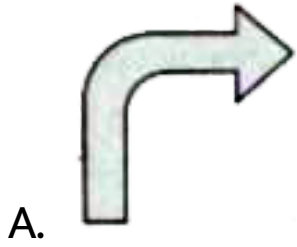
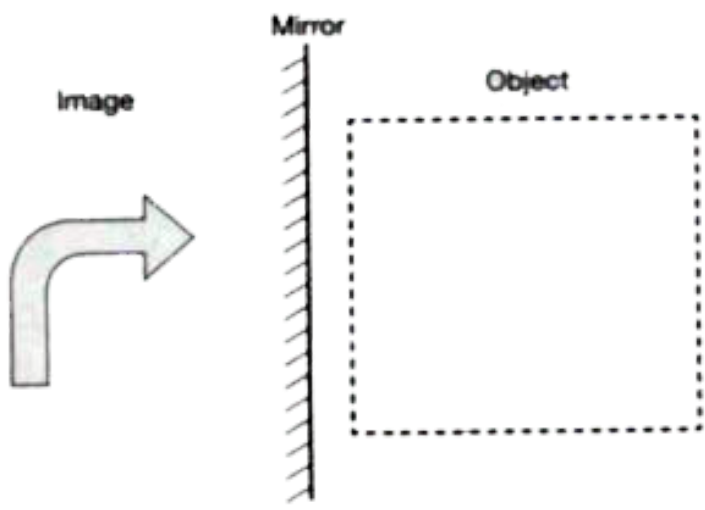
D. pupil

Answer: C



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45. Look at the picture and identify the object whose image has formed inside the mirror.



D.



Answer: C



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46. (a) What is spectrum ? What is the name of glass shape used to produce a spectrum ?

(b) How many colours are there in a full spectrum of white light ? Write the various

colours of spectrum in the order, starting with red.

A. 6

B. 7

C. 8

D. None

Answer: B



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47. Which of these is a tactual aid for visually challenged individuals?

A. Talking calculator

B. Braille system

C. Audio book

D. Tape recorder

Answer: B



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48. Explain how our eyes can detect both nearby and faraway objects.

A. Sclera.

B. Pupil

C. Optic nerve

D. Ciliary muscles

Answer: D



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49. Which of these practices could be harmful to the eyes?

A. Eating a healthy and balanced diet

B. Rubbing the eyes at regular intervals

C. Wearing sunglasses while going out in
the sun

D. Using an anti-glare screen on the
computer

Answer: B





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50. The least distance of distinct vision is

A. 2.5cm

B. 25 cm

C. 2.5m

D. 25 m

Answer: B



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51. Maya has green eyes. Which of these parts of her eyes is actually green in colour?

A. Iris

B. Pupil

C. Cornea

D. Eye lens

Answer: A



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52. Which part of the human eye is not transparent in nature?

A. Sclera

B. Cornea

C. Eye lens

D. Pupil

Answer: A



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53. Two mirrors placed at an angle to θ each other form 23 images of an object placed in between them. What is the value of angle θ ?

A. 15°

B. 30°

C. 45°

D. 60°

Answer: A



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54. Which of these formulae correctly depicts the relationship between the angle between two plane mirrors and the number of images that will be formed within them if an object is placed between them?

A. $n = 1 - (360^\circ / \theta)$

B. $n = 1(360^\circ / \theta) - 1$

C. $n = (360^\circ / \theta) + 1$

D. $n = 360^\circ / \theta$

Answer: B



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55. Choose the incorrect statement regarding the image formed by a plane mirror.

A. The image formed by a plane mirror is erect or upright.

B. The image formed by a plane mirror is laterally inverted.

C. The image formed by a plane mirror is virtual in nature.

D. The image formed by a plane mirror is smaller than the object.

Answer: D



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56. Two parallel rays of light A and B simultaneously fall on the surface of still water in a pond. If the angle of incidence of ray A is 75° , what will be the angle of reflection of ray B?

A. 75°

B. 15°

C. 90°

D. Cannot be determined

Answer: A



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57. On which of these objects would light undergo regular reflection?

A. book

B. wooden table

C. wall

D. mirror

Answer: D



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58. If a ray of light falling on a mirror makes an angle of 60° with the mirror, then the angle

between the incident and reflected rays will be

_____°.

A. 30°

B. 60°

C. 90°

D. 120°

Answer: B



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59. A normal drawn at the point of incidence makes an angle of _____ with its corresponding opaque surface.

A. 0°

B. 45°

C. 90°

D. 180°

Answer: C



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