



INDIAN SCHOOL AL WADI AL KABIR



CLASS: VII	DEPARTMENT: SCIENCE 2022 -23	DATE: 10.10.2022
WORKSHEET NO.: 09 WITH ANSWERS	TOPIC: LIGHT	NOTE: A4 FILE FORMAT
NAME OF THE STUDENT:	CLASS & SEC:	ROLL NO.

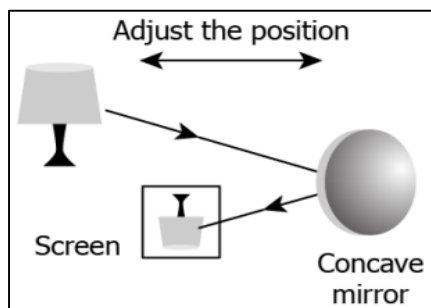
I. VERY SHORT ANSWER TYPE QUESTIONS (1M):

1. What do you mean by the reflection of light? [Hint- The bouncing back of light with the change in direction.]
2. What makes things visible to us?
[Hint: Objects are visible only when light reflected from them reaches our eyes.]
3. Name any four different sources of light. [Hint: sun, stars, an electric bulb and a candle]
4. What is a mirror? [HINT: Any polished or smooth surface which can reflect light.]
5. What do you mean by rectilinear propagation of light?
[Hint: The property of light travelling in a straight line.]
6. What is the composition of sunlight? [Hint: Sunlight is a mixture of seven colours.]
7. Give the name of the phenomenon that leads to the formation of a band of seven colours.
[HINT: Dispersion of white light is the name of the phenomenon which leads to the formation of a band of seven colours.]
8. What are spherical mirrors? [Hint: Mirrors having curved surfaces are known as spherical mirrors.]
9. Name any two letters of the English alphabet in which the image formed in a plane mirror appears exactly like the letters. [Hint: A, H, I, M, O, T, U, V, W, X, Y]
10. What type of image is formed – (real or virtual)
 - a) In a plane mirror [Hint: Virtual]
 - b) on a cinema screen [Hint: Real]

For question numbers 11 to 13, two statements are given- one labelled Assertion (A) and the other labelled Reason (R).

III. CASE STUDY BASED QUESTIONS:

1. A student found a piece of note which has very tiny words imprinted on it. Which of these should the student use in order to recognize the words?
a] Convex lens
b] Concave lens
c] Convex mirror
d] Concave mirror
2. A student performs an activity where he uses a lamp and projects its image on a screen as shown in the image.



He kept on changing the distance between the lamp and the mirror for various positions. He notices that the image formed on the screen disappears when the lamp is held close to the mirror. What explains the disappearance of the image on the screen?

- a] Size of the screen should always be larger than of the object .
 - b] Objects held close to a concave mirror produces a virtual image .
 - c] Concave mirror does not reflect light when the object is held too close to it .
 - d] Distance of the screen from the mirror should always be less than that of the object.
3. Mandar and Farzin were given one mirror each by their teacher. Mandar found his image to be erect and of the same size whereas Farzin found her image erect and smaller in size. This means that the mirrors of Mandar and Farzin are respectively -
a] plane mirror and concave mirror
b] concave mirror and convex mirror
c] plane mirror and convex mirror
d] convex mirror and plane mirror
 4. Amita is observing her image in a plane mirror. The distance between the mirror and her image 4 m. If she moves 1 m towards the mirror, then the distance between Amita and her image will be:
a] 6 m
b] 5 m
c] 8 m
d] 3 m

[Hint: similarity - virtual and erect, difference – smaller than the object]

11. The side mirror of a scooter got broken. The mechanic replaced it with a plane mirror.

Mention any inconvenience that the driver of the scooter will face while using it.

[Hint: Driver cannot see the traffic spread over large area behind him.]

12. What happens when a beam of sunlight is passed through a glass prism?

[Hint: When a beam of light is passed through a prism it splits into seven different colours

(VIBGYOR). The band of seven colours is called spectrum.]

IV. b) SHORT ANSWER TYPE QUESTIONS: (3M)

1. State four characteristics of the image formed by a plane mirror.

[Hint: Image is upright, virtual, same size as size of the object, image formed is at same distance behind the mirror as the object is in front of it]

2. What type of image is formed by a concave mirror? [Hint: The image formed by a concave mirror is real and inverted. If the object is placed very near to the mirror then the image formed is virtual and erect.]

3. What is the nature of image formed by a convex mirror? [Hint: The nature of image formed by convex mirror is always virtual and erect.]

4. Two different types of lenses are placed on a sheet of newspaper. How will you identify them without touching? [Hint: On observing the letters of newspaper, we can differentiate the two types of lenses. If image is larger or magnified then the lens is a convex lens and if the image is smaller or diminished in size for all positions of the object, then the lens is concave.]

5. What type of mirror is used:

- a) In a searchlight [HINT: concave]
- b) As a side-view mirror in a car [HINT: convex]
- c) As a shaving mirror [HINT: concave]
- d) Vigilance-mirror in a big shop [HINT: convex]

6. How are rainbows formed? [Hint: Rainbows are formed by the splitting of white light of the sun through transparent water droplets present in the air. The sunlight splits into seven colours of the rainbow.]

7. In what way is the word “AMBULANCE” painted in front of the hospital vans? Why is it painted in this way? [The word AMBULANCE on the hospital vans is written in the form of its mirror image, because any vehicle which is ahead of ambulance van can see the laterally inverted alphabets correctly from his rear-view mirror and make way for it to pass through and enable it to reach the hospital quickly.]

8. Amar suffers from toothache and goes to the dentist. He becomes afraid when he sees different instruments in doctor’s hand. But he becomes surprised when he observes some reflecting shiny surface fitted on the doctor’s forehead -

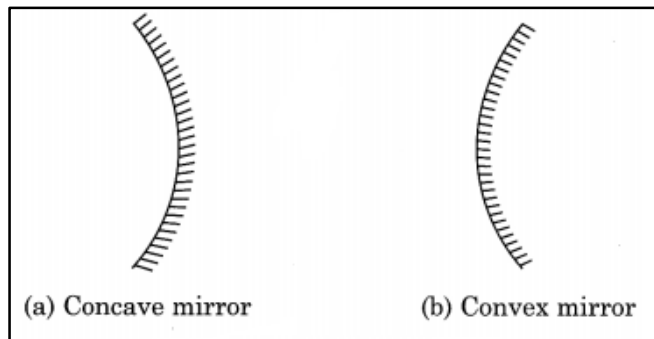
a) What is the shiny surface and what is its function?

[Hint: Concave mirror. To see an enlarged image of the teeth.]

b) Mention some other devices where such kind of mirror can be used?

[Hint: Reflectors of torch, headlights of car.]

9. Draw diagrams to differentiate between Concave and convex mirror.

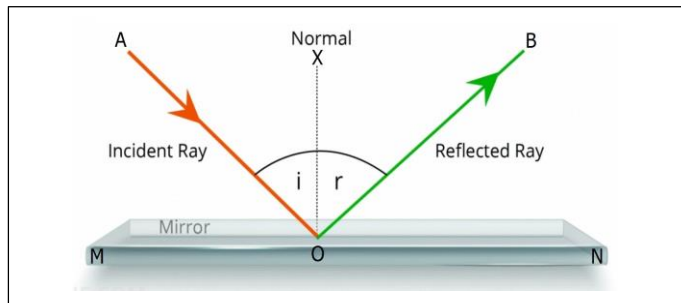


10. Differentiate between real image and virtual image.

REAL IMAGE	VIRTUAL IMAGE
i) Image that can be obtained on a screen is called real image	i) Image that cannot be obtained on a screen is called virtual image
ii) Image is always inverted	ii) Image is always erect
iii) e.g. Image formed on the retina of the eye	iii) e.g. Image formed by a plane mirror.

V. LONG ANSWER TYPE QUESTIONS: (5M)

1. What do you mean by 'angle of incidence' of a ray of light on a plane mirror?



[Hint: Angle of incidence is the angle between the incident ray and the normal to the plane mirror at the point of incidence.

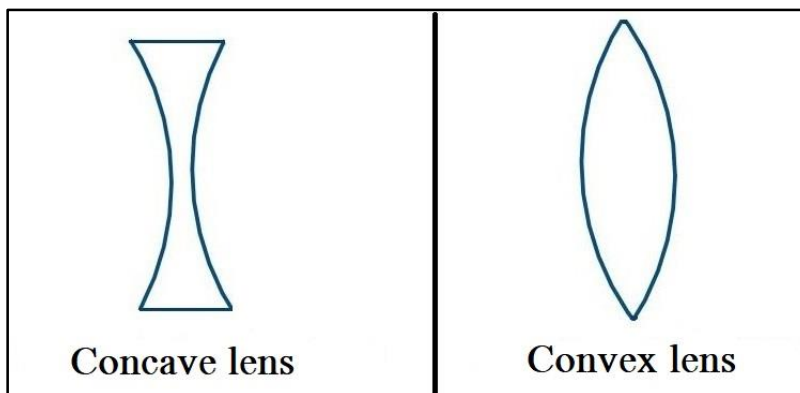
In the figure, MN is the plane mirror, AO is the incident ray, O is the point of incidence, OX is the normal and $\angle AOX$ is the angle of incidence.]

2. Write an experiment to show that the sunlight consists of seven colours.

[Hint: Take a glass prism. Allow a narrow beam of sunlight through a small hole in the window of a dark room to fall on one face of the prism. Let the light coming out of the other face of the prism fall on a white sheet of paper or on a white wall. We see colours similar to those in a rainbow. This shows that the sunlight consists of seven colours.]

3. With the help of diagrams, define and differentiate between concave and convex lenses.

[Hint:



CONCAVE LENS	CONVEX LENS
1. A concave lens is thin in the middle and thicker at the edges	1. A convex lens is thicker in the middle and thin at the edges
2. It is also known as divergent lens	2. It is also known as convergent lens
3. Image look smaller through concave lens	3. A convex lens usually magnifies images

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