INDIAN SCHOOL AL WADI AL KABIR		
CLASS: VII	**DEPARTMENT: SCIENCE** **2023 - 2024**	**DATE: 10/10/2023**
TEXTBOOK Q & A	**TOPIC: LIGHT**	**NOTE: A4 FILE FORMAT**
NAME OF THE STUDENT:	**CLASS & SEC:**	**ROLL NO.**

1. **Fill in the blanks:**

   a) An image that cannot be obtained on a screen is called a **Virtual image**.

   (b) Image formed by a convex **mirror** is always virtual and smaller in size.

   (c) An image formed by a **plane** mirror is always of the same size as that of the object.

   (d) An image which can be obtained on a screen is called a **real** image.

   (e) An image formed by a concave **lens** cannot be obtained on a screen.

2. **Mark 'T' if the statement is true and 'F' if it is false:**

   (a) We can obtain an enlarged and erect image by a convex mirror. (T/F) – **False**

   (b) A concave lens always forms a virtual image. (T/F) – **True**

   (c) We can obtain a real, enlarged and inverted image by a concave mirror. (T/F) – **True**

   (d) A real image cannot be obtained on a screen. (T/F) - **False**

   (e) A concave mirror always form a real image. (T/F) – **False**

3. **Match the items given in Column I with one or more items of Column II.**

Column I	Column II
a] A plane mirror	**i] Used as a magnifying glass.**
b] A convex mirror	**ii] Can form an image of objects spread over a large area.**
c] A convex lens	**iii] Used by the dentist to see an enlarged image of teeth.**
d] A concave mirror	**iv] The image is always inverted and magnified.**
e] A concave lens	**v] The image is erect and of the same size than object.**
	vi] The image is erect and smaller in size than the object.

Ans - (a) - (v), (b) - (ii), (c) - (i), (d) - (iii), (e) - (vi)

4. **State the characteristics of the image formed by a plane mirror.**

Ans - (i) Plane mirror forms an erect image.

(ii) It forms a virtual image.

(iii) Size of the image is the same as that of the object.

(iv)Image is formed at the same distance behind the mirror as the object stands in front of it.

(v) Image formed is a laterally inverted image i.e., right-hand side of the object seems to be the left-hand side and vice-versa.

5. **Find out the letters of the English alphabet or any other language known to you in which the image formed in a plane mirror appears exactly like the letter itself. Discuss your findings.**

Ans - Letters like A, H, I, M, O, T, U, V, W, X, Y alphabets appear the same when seen through a plane mirror.

6. **What is a virtual image? Give one situation where a virtual image is formed.**

Ans - The image which cannot be obtained on a screen is called a virtual image. When some object is placed very close to the concave mirror; we don't get any image on the white screen placed behind the mirror. Such an image is called a virtual image. The plane mirror always forms a virtual image.

7. **State two differences between a convex and a concave lens.**

Ans -

Convex lens	Concave lens
1. Thick at the middle, thin at the edge.	1. Thin at the middle, thick at the edge.
2. It can form a magnified image	2. Image is always diminished in size

8. **Give one use each of a concave and a convex mirror.**

Ans - Use of concave mirror: Concave mirror is used by dentists to see the enlarged image of the patient's teeth.

Use of convex mirror: Convex mirror is used as a side view mirror in vehicles because it enables the driver to view objects spread over a large area behind him/her.

9. **Which type of mirror can form a real image?**

Ans - Concave mirrors can form a real image. The nature of the image depends on the distance of the object from the concave mirror.

10. **Which type of lens forms always a virtual image?**

Ans - Concave lens always forms a virtual image.

Choose the correct option in Questions 11-13:

11. A virtual image larger than the object can be produced by a

(i) concave lens **(ii) concave mirror**

(iii) convex mirror (iv) plane mirror

12. David is observing his image in a plane mirror. The distance between the mirror and his image is 4 m. If he moves 1 m towards the mirror, then the distance between David and his image will be

(i) 3 m (ii) 5 m

(iii) 6 m (iv) 8 m

13. The rear-view mirror of a car is a plane mirror. A driver is reversing his car at a speed of 2 m/s. The driver sees in his rear view mirror the image of a truck parked behind his car. The speed at which the image of the truck appears to approach the driver will be

(i) 1 m/s (ii) 2 m/s

(iii) 4 m/s (iv) 8 m/s

[Hint: In a plane mirror the object and its image always remain at the same distance from the mirror. So when the car reverses at a speed of 2m/s then the image will also appear to move towards the driver. Therefore, the speed at which the image of the truck appears to approach the driver will be 2+2 =4 m/s]

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