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Class: VII
Subject: Physics
Topic: Light
No. of Qs: 20

Q 1. What is the difference between a concave and a convex lens?

Sol: A convex lens is thicker at the centre but thinner at the edges whereas a concave lens is thinner in the middle but thicker at the edges. Also, a convex lens is a converging lens whereas a concave lens is a diverging lens.

Q 2. Why concave mirrors are used as shaving mirrors?

Sol: The concave mirrors are used as shaving mirrors because when the face is held within the focus of concave mirror then an enlarged image of the face is seen in the concave mirror.

Q 3. If an object is placed at a distance of 10 cm in front of a plane mirror, how far would it be from its image?

Sol: If an object is placed at a distance of 10 cm in front of a plane mirror, it would be 20 cm away from its image since the image formed is at the same distance from the mirror as the object is in front of it.

Q 4. The letter F is placed in front of a plane mirror. How would its image look like when seen in a mirror?

Sol: The image would appear as:

Q 5. When is a rainbow observed in the sky?

Sol: A rainbow is seen in the sky usually after the rain when the sun is low in the sky. The water droplets in the air act as prism and disperse the light to form rainbow.

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Q 6. Why is it not possible to obtain a virtual image on the screen?

Sol: It is not possible to obtain a virtual image on the screen because light rays actually do not pass through it.

Q 7. Name some objects which emit light.

Sol: Torch, lighthouse, sun, a lighted candle and tube light.

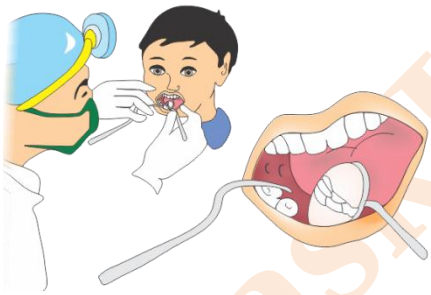
Q 8. How does light travel?

Sol: Light travels in straight lines. It does not need any medium to travel.

Q 9. What type of image is formed by a concave lens?

Sol: A concave lens always produces virtual erect and smaller image.

Q 10. Identify the given diagram. Which mirror is used in this case?



Sol: In the given diagram, a dentist is examining a patient. The mirror used in this case is concave mirror.

Q 11. How can a convex lens be used as a magnifying glass?

Sol: To use a convex lens as a magnifying glass, the object to be viewed should be placed close to the convex lens so that a magnified and erect image of the small object can be seen on looking through the convex lens.

Q 12. What is the difference between the image formed by a concave mirror and convex mirror?

Sol: A concave mirror can produce a magnified as well as a diminished image whereas a convex mirror always produces a diminished image of an object.

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Q 13. What is a lens? Name two types of lenses.

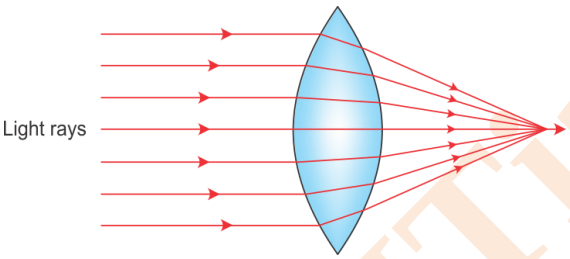
Sol: A lens is a piece of transparent glass bound by two spherical surfaces. The two types of lenses are convex lens and concave lens.

Q 14. Can an image formed by convex mirror be taken on screen? Give reason for your answer.

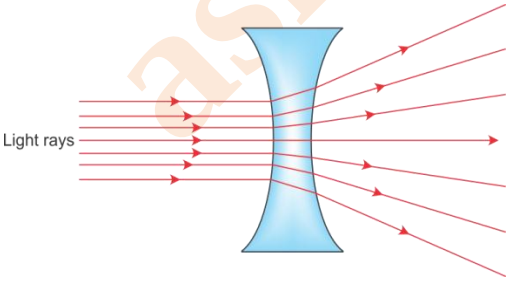
Sol: No, an image formed by convex mirror cannot be taken on screen because a convex mirror forms virtual images which cannot be taken on screen.

Q 15. Diagrammatically show the converging and diverging lens.

Sol: (a) Converging lens



(b) Diverging lens



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Q 16. How does light enable us to see an object?

Sol: An object reflects light falling on it. The reflected light, when received by our eyes enables us to see that object.

Q 17. Why concave mirrors are used by dentists?

Sol: The concave mirrors are used by dentists because when the tooth is within the focus of concave mirror then an enlarged and virtual image of the tooth is seen in the concave mirror.

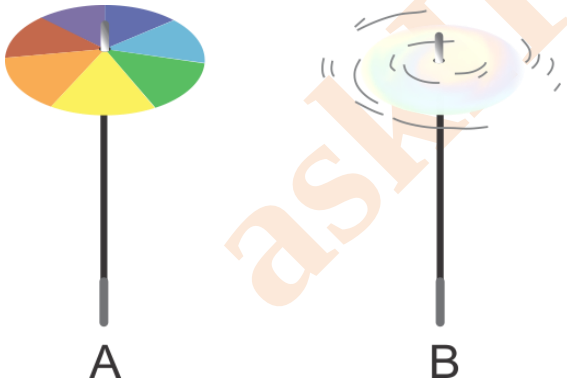
Q 18. Which part of spoon acts like a convex mirror?

Sol: The outer part of the spoon acts like a convex mirror.

Q 19. What kind of image can never be obtained from a convex mirror?

Sol: We can never get a real, inverted and magnified image of with a convex mirror.

Q 20. What do the following figures indicate?



Sol: A disc with seven colours.

It appears white on rotating.

It is popularly known as Newton's disc.