PHYSICS - X-PART-2 CLASS 34

Field of View of Mirrors and the Nature of Images

The position of image and the features of image when objects are placed in different positions in front of different types of mirrors are tabulated.

Plane mirror	Convex mirror	Concave mirror	
		Position of object	Position of image and features
Image is behind the mirror. Distance of object from the mirror and distance of the image from the mirror are equal. The image is virtual, erect and is of the same size as that of the object.	Image is formed In between the pole of the mirror and the principal focus. The image is diminished, virtual and erect.	At infinity	At focus, Small, real, inverted
		Beyond C	Between F and C, small, real, inverted
		At C	At C, Same size as object, real, inverted
		Between C and F	Beyond C, Big, real, inverted
		At F	At infinity
		Between F and P	At behind the mirror, Very large, virtual, Erect

Situations in daily life where we can make use of these mirrors

Mirror	Inferences (Position of image and features)	Situations making use of them
Plane mirror	The image is behind the mirror. Distance to object and distance to image from the mirror are the same. The image is virtual, erect and is of the same size as that of the object.	For observing the face.
Convex mirror	Image is always formed in between the pole of the mirror and the principal focus. The image is diminished, virtual and erect.	Used as rear view mirror
Concave mirror	Converges distant rays to the principal focus.	Used as solar concentrators
Concave mirror	Reflects the rays coming from principal focus as parallel rays.	Used as head light of car (As reflector)
Concave mirror	For the object placed between principal focus and pole, the images formed are enlarged and erect.	Used as shaving mirror. Dentist

Field of view

* **The field of view of a mirror is the maximum range of the vision through the mirror.**

* **Each mirror differs in their field of view just as they differ in the nature of images formed.**

* **Why convex mirrors are used as rear view mirrors?**

  ➔ **The field of view is maximum for a convex mirror. Hence it used as rear view mirrors.**

Worksheet

1. **What are the characteristics of image if the object is placed beyond C in a concave mirror?**

2. **What are the characteristics of image if the object is placed at C in front of a concave mirror?**