

- Q.2 Which of the following statement is correct if we cut two spherical mirrors from the same sphere?
 (A) They necessarily have same radius of curvature but may have same or different aperture.
 (B) They may have different radius of curvature
 (C) They have different radius of curvature but same aperture.
 (D) They have different radius of curvature and aperture.
- **Q.3** Which of the following correctly represents the relation between u (object distance from pole), v (image distance from pole) and R (radius of curvature of spherical mirror)? **(A)** $R = \frac{2uv}{u+v}$ **(B)** $R = \frac{2}{u+v}$ **(C)** $R = \frac{2(u+v)}{uv}$ **(D)**None of these
- **Q.4** In the given figure, the focal length of the two mirrors M 1 and M 2 for the given incident rays are f_1 and f_2 respectively, then.



- Q.5The sun diameter is 1.4×10^9 m and its distance from the earth is 10^{11} m. The diameter of its image,
formed by a concave mirror of focal length 2 m will be
(A)0.7 cm(B)1.4cm(C)2.8cm(D)10cm
- **Q.6** A beam of parallel rays is incident on a concave mirror such that they make a very small angle θ with the principle axis of the concave mirror. The distance from the focus on the focal plane where rays converge after reflection is.



Q.7 A ray parallel to x - axis is incident on a spherical reflecting surface of radius R and the reflected ray becomes parallel to the y - axis as shown. Find the coordinates of point P

(A)(-R, R) (B)(
$$\frac{R}{\sqrt{2}}, \frac{R}{\sqrt{2}}$$
) (C)($-\frac{R}{\sqrt{2}}, \frac{R}{\sqrt{2}}$) (D)($\frac{-R}{2}, \frac{R}{2}$)



Q.8 A convex mirror has been cut out of a sphere represented by the equation $x^2 + y^2 + z^2 = 25$ where x, y, z are in cm. If a parallel beam of light, after reflection from the mirror appears to intersect at the focal point of the mirror, then its focal length is.



Q.9 If an incident light ray parallel to the principal axis is incident at an angle of i then find the distance of Q from the centre of curvature C if the angle of incidence is finite. Here, R is the radius of curvature.



Q.10 In the given figure, a ray of light 1 cm above the principal axis get reflected from a concave mirror and intersect the principal axis at Y. Find the length PY if the radius of curvature of the mirror is 2 cm.



ANSWER KEY

Q.	1	2	3	4	5	6	7	8	9	10
Sol.	(B)	(A)	(A)	(D)	(C)	(D)	(C)	(C)	(B)	(B)