1. Following figure shows the multiple reflections of a light ray along a glass corridor where the walls are either parallel or perpendicular to one another. If the angle of incidence at point \( P \) is 30°, then the angles of reflection of the light ray at points \( Q, R, S \) and \( T \) respectively are:

(A) 30°, 30°, 30°, 30°  (B) 30°, 60°, 30°, 60°  (C) 30°, 60°, 60°, 30°  (D) 60°, 60°, 60°, 60°

2. A point object is placed mid-way between two plane mirrors kept parallel to each other at a distance ‘\( a \)’ apart. The plane mirror forms an infinite number of images due to multiple reflection. The distance between the \( n^{th} \) order image formed in the two mirrors is:

(A) \( na \)  (B) \( 2na \)  (C) \( \frac{na}{2} \)  (D) \( n^2a \)

3. Two plane mirror are inclined to each other such that a ray of light incident on the first mirror and parallel to the second is reflected from the second mirror parallel to the first mirror. Then the angle between the two mirror is:

(A) 30°  (B) 45°  (C) 60°  (D) 90°

4. A light ray falls on a plane mirror and deviates by 60°, then the angle of reflection will be:

(A) 30°  (B) 60°  (C) 90°  (D) 180°

5. There are two plane mirror inclined at 40°, as shown in the figure. A ray of light is incident on mirror \( M_1 \), then what should be the value of angle of incidence ‘\( i \)’ so that the light ray retraces its path after striking the mirror \( M_2 \):

(A) 40°  (B) 50°  (C) 60°  (D) 70°
6. A point object is placed at a point $P$ infront of a plane mirror $MN$, then the position coordinate of the image will be:

(A) (2,0)  (B) (4,0)  (C) (6,0)  (D) (2,3)

7. Two plane mirrors $M_1$ and $M_2$ are inclined to each other at an angle $70^\circ$. A ray incident on the mirror $M_1$ at an angle $\theta$ falls on $M_2$ and is then reflected parallel to $M_1$ for:

(A) $\theta = 45^\circ$  (B) $\theta = 50^\circ$  (C) $\theta = 55^\circ$  (D) $\theta = 60^\circ$

8. A mirror is inclined at an angle of $\theta$ with the horizontal. If a ray of light is incident at an angle $\theta$ as shown, then the angle made by reflected ray with the horizontal is:

(A) $\theta$  (B) $2\theta$  (C) $\frac{\theta}{2}$  (D) zero

9. A light ray is incident on a set of two plane mirrors, which after getting reflected from first mirror strikes on a second mirror, as shown in the figure. If the angle between the two mirrors is $60^\circ$, then the angle ‘$\theta$’ shown in the figure is:

(A) $60^\circ$  (B) $40^\circ$  (C) $30^\circ$  (D) $15^\circ$

10. Two plane mirrors are inclined at an angle $\theta$. A ray of light is incident on first mirror at an angle of incidence $i$. The ray reflected from this mirror falls on the second mirror from where it is reflected parallel to the first mirror, then the value of angle of incidence $i$ is:

(A) $90^\circ - \theta$  (B) $2\theta - 90^\circ$  (C) $90^\circ + \theta$  (D) $90^\circ - 2\theta$

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**ANSWER KEY**

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