- Q.1 When a light ray from a rarer medium is refracted into a denser medium, its
 (A)Speed increases, wavelength increases
 (B)Speed decreases, wavelength increases
 (C)Speed increases, wavelength decreases
 (D)Speed decreases, wavelength decreases
- **Q.2** A ray of light travelling in air have wavelength λ , frequency n, velocity v and intensity I. If this ray enters into water then these parameters are λ' , n', v' and I'respectively. Which relation is correct from following?



Q.3 In the following ray diagrams, a ray of light is incident at an equal angle of incidence at the interface of four different materials. Which material is optically densest?



Q.4 What is the speed of light and wavelength in a medium having refractive index $\mu = 1.5$, if the wavelength of light in air is 780 nm? **(A)** 2×10^8 m/s and 520 nm **(B)** 1.5×10^8 m/s and 520 nm

(C) 2×10^8 m/s and 500 nm

(B) 1.5×10^8 m/s and 520 nm (D) 1.5×10^8 m/s and 500 nm

Q.5 The angle of incidence in medium 1 is 60° and angle of refraction in medium 2 is 30°. Find $_{1}\mu_{2}$.



Q.6 Refractive index of glass with respect to water is $\frac{9}{8}$ and refractive index of glass with respect to air is $\frac{3}{2}$. The refractive index of water with respect to air will be $(\mathbf{A})^{\frac{5}{3}}$ $(\mathbf{B})^{\frac{3}{5}}$ $(\mathbf{C})^{\frac{4}{3}}$ $(\mathbf{D})^{\frac{3}{4}}$

Q.7Find the angle of deviation in the given figure.
(A)15° anticlockwise(B)15° clockwise(C)30° clockwise(D)37° clockwise



Q.8 A concave mirror forms a real image of a point source (*S*) lying on the optical axis at a distance of 50 cm from the mirror. The focal length of the mirror is 25 cm. The mirror is cut into two equal parts, and each half are drawn at a distance of 1 cm apart in a direction perpendicular to the optical axis. The distance between the two images formed by the two halves of the mirror will be



Q.9 A concave mirror is initially positioned as shown in Case (I). Now, some identical parts from a concave mirror are removed and the rest remains in original position as shown in the case II. The number of images formed in case II, if the centre of curvature of all the parts remains same will be



Q.10 The X – Z plane separates two media A and B of refractive indices $\mu_A = 1.5$ and $\mu_B = 2$. A ray of light travels from A to B, its direction in two media are given by unit vectors. $\hat{u}_A = a\hat{i} + b\hat{j}$ and $\hat{u}_B = c\hat{i} + d\hat{j}$ respectively, then

(A)
$$\frac{a}{c} = \frac{4}{3}$$
 (B) $\frac{a}{c} = \frac{3}{4}$ (C) $\frac{b}{d} = \frac{4}{3}$ (D) $\frac{b}{d} = \frac{3}{4}$

ANSWER KEY

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