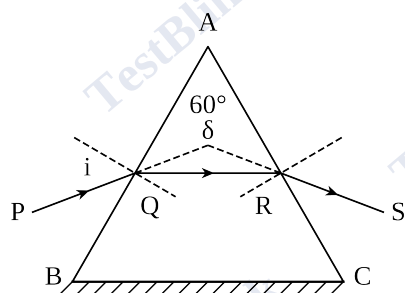


NEET RAY OPTICS AND OPTICAL INSTRUMENTS — REFRACTION THROUGH A PRISM, DISPERSION — PYQS

Max. Marks: 56
Questions: 14

Section A (MCQ) — 14 questions

- Q.1** A ray of monochromatic light is passing through an equilateral prism (ABC) as shown in the figure. The refracted ray (QR) is parallel to its base (BC) and the angle of incidence (i) is 50° . Then the angle of deviation (δ) is : [NEET (UG) 2026]

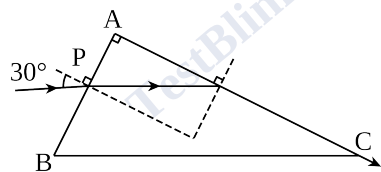


- (1) 45° (2) 55° (3) 35° (4) 40°

Scan or tap for the full solution



- Q.2** A light ray enters through a right angled prism at point P with the angle of incidence 30° as shown in figure. It travels through the prism parallel to its base BC and emerges along the face AC. The refractive index of the prism is: [NEET (UG) 2024]

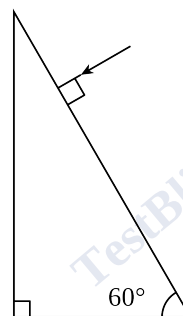


- (1) $\frac{\sqrt{5}}{4}$ (2) $\frac{\sqrt{5}}{2}$ (3) $\frac{\sqrt{3}}{4}$ (4) $\frac{\sqrt{3}}{2}$

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- Q.3** Find the value of the angle of emergence from the prism. Refractive index of the glass is $\sqrt{3}$ [NEET (UG) 2021]



- (1) 90° (2) 60° (3) 30° (4) 45°

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- Q.4** A ray is incident at an angle of incidence i on one surface of a small angle prism (with angle of prism A) and emerges normally from the opposite surface. If the refractive index of the material of the prism is μ , then the angle of incidence is nearly equal to : [NEET (UG) 2020]

- (1) $\frac{2A}{\mu}$ (2) μA (3) $\frac{\mu A}{2}$ (4) $\frac{A}{2\mu}$

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- Q.5** The refractive index of the material of a prism is $\sqrt{2}$ and the angle of the prism is 30° . One of the two refracting surfaces of the prism is made a mirror inwards, by silver coating. A beam of monochromatic light entering the prism from the other face will retrace its path (after reflection from the silvered surface) if its angle of incidence on the prism is [NEET 2018]
- (1) 60° (2) 45° (3) 30° (4) zero

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- Q.6** A thin prism having refracting angle 10° is made of glass of refractive index 1.42. This prism is combined with another thin prism of glass of refractive index 1.7. This combination produces dispersion without deviation. The refracting angle of second prism should be [NEET 2017]

- (1) 6° (2) 8° (3) 10° (4) 4°

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- Q.7** The angle of incidence for a ray of light at a refracting surface of a prism is 45° . The angle of prism is 60° . If the ray suffers minimum deviation through the prism, the angle of minimum deviation and refractive index of the material of the prism respectively, are

[NEET 2016 (Phase 1)]

- (1) 45° ; $\sqrt{2}$ (2) 30° ; $\frac{1}{\sqrt{2}}$
 (3) 45° ; $\frac{1}{\sqrt{2}}$ (4) 30° ; $\sqrt{2}$

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- Q.8** The refracting angle of a prism is A , and refractive index of the material of the prism is $\cot(A/2)$. The angle of minimum deviation is

[AIPMT 2015 (Cancelled)]

- (1) $90^\circ - A$ (2) $180^\circ + 2A$
 (3) $180^\circ - 3A$ (4) $180^\circ - 2A$

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- Q.9** The angle of a prism is A . One of its refracting surfaces is silvered. Light rays falling at an angle of incidence $2A$ on the first surface return back through the same path after suffering reflection at the silvered surface. The refractive index μ , of the prism is

[AIPMT 2014]

- (1) $2\sin A$ (2) $2\cos A$ (3) $\frac{1}{2} \cos A$ (4) $\tan A$

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- Q.10** For the angle of minimum deviation of a prism to be equal to its refracting angle, the prism must be made of a material whose refractive index

[AIPMT 2012 (Mains)]

- (1) lies between $\sqrt{2}$ and 1
 (2) lies between 2 and $\sqrt{2}$
 (3) is less than 1
 (4) is greater than 2

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- Q.11** A ray of light is incident at an angle of incidence i , on one face of a prism of angle A (assumed to be small) and emerges normally from the opposite face. If the refractive index of the prism is μ , the angle of incidence i , is nearly equal to

[AIPMT 2012 (Prelims)]

- (1) μA (2) $\frac{\mu A}{2}$ (3) $\frac{A}{\mu}$ (4) $\frac{A}{2\mu}$

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- Q.12** A thin prism of angle 15° made of glass of refractive index $\mu_1 = 1.5$ is combined with another prism of glass of refractive index $\mu_2 = 1.75$. The combination of the prisms produces dispersion without deviation. The angle of the second prism should be

[AIPMT 2011 (Mains)]

- (1) 5° (2) 7° (3) 10° (4) 12°

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- Q.13** A ray of light is incident on a 60° prism at the minimum deviation position. The angle of refraction at the first face (i.e., incident face) of the prism is

[AIPMT 2010 (Mains)]

- (1) zero (2) 30° (3) 45° (4) 60°

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- Q.14** The refractive index of the material of a prism is $\sqrt{2}$ and its refracting angle is 30° . One of the refracting surfaces of the prism is made a mirror inwards. A beam of monochromatic light entering the prism from the other face will retrace its path after reflection from the mirrored surface if its angle of incidence on the prism is

[AIPMT 2004]

- (1) 45° (2) 60° (3) 0° (4) 30°

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ANSWER KEY

Ques.	1	2	3	4	5	6	7	8	9	10	11
Ans.	4	2	2	2	2	1	4	4	2	2	1
Ques.	12	13	14								
Ans.	3	2	1								