

Schand (CH-5) pg-228.

Q. R.I. $n_{\text{flint}} = \frac{\text{Speed of light in vacuum}}{\text{Speed of light in flint glass}} = \frac{3 \times 10^8}{1.86 \times 10^8} = 1.61$

b) $n_{\text{crown}} = \frac{3 \times 10^8}{1.97 \times 10^8} = 1.52$

c) $n_{\text{crown flint}} = \frac{1.97 \times 10^8}{1.86 \times 10^8} = 1.059$

13. a) $n_x = \frac{3.0 \times 10^8 \text{ m/s}}{2.0 \times 10^8 \text{ m/s}} = 1.5$

b) $n_y = \frac{3.0 \times 10^8 \text{ m/s}}{2.50 \times 10^8 \text{ m/s}} = 1.2$

c) $n_r = \frac{2.0 \times 10^8 \text{ m/s}}{2.50 \times 10^8 \text{ m/s}} = 0.8$

14. $1.2 = \frac{30000}{\text{Speed of light in medium}} = \frac{25000 \text{ km/s}}$

15. $1.5 = \frac{3 \times 10^8}{\text{Speed of light in glass}} = 2 \times 10^8 \text{ m/s}$

16. R.I. in water = $\frac{3 \times 10^8}{2.25 \times 10^8} = 1.33$

17. 2.42×10^8 \div 3×10^8 = 1.239×10^8 m/s
Speed of light in diamond

19. The refractive indices of four substances P , Q , R and S are 1.50, 1.36, 1.77 and 1.31 respectively. The speed of light is the maximum in the substance :
- (a) P (b) Q (c) R ~~(d) S~~
20. The refractive indices of four materials A , B , C and D are 1.33, 1.43, 1.71 and 1.52 respectively. When the light rays pass from air into these materials, they refract the maximum in :
- (a) material A (b) material B ~~(c) material C~~ (d) material D

21. The refractive index of glass for light going from air to glass is $\frac{3}{2}$. The refractive index for light going from glass to air will be :
- (a) $\frac{1}{3}$ (b) $\frac{4}{5}$ ~~(c) $\frac{4}{6}$~~ (d) $\frac{5}{2}$
22. The refractive indices of four media A, B, C and D are 1.44, 1.52, 1.65 and 1.36 respectively. When light travelling in air is incident in these media at equal angles, the angle of refraction will be the minimum :
- ~~(a) in medium A~~ (b) in medium B ~~(c) in medium C~~ (d) in medium D
23. The speed of light in substance X is 1.25×10^8 m/s and that in air is 3×10^8 m/s. The refractive index of this substance will be :
- ~~(a) 2.4~~ (b) 0.4 (c) 4.2 (d) 3.75
24. The refractive indexes of four substances P, Q, R and S are 1.77, 1.50, 2.42 and 1.31 respectively. When light travelling in air is incident on these substances at equal angles, the angle of refraction will be the maximum in :
- (a) substance P (b) substance Q (c) substance R ~~(d) substance S~~
25. The refractive index of water is :
- ~~(a) 1.33~~ (b) 1.50 (c) 2.42 (d) 1.36
26. The refractive index of water with respect to air is $\frac{4}{3}$. The refractive index of air with respect to water will be :
- (a) 1.75 (b) 0.50 ~~(c) 0.75~~ (d) 0.25
27. Refractive indices of water, sulphuric acid, glass and carbon disulphide are 1.33, 1.43, 1.53 and 1.63 respectively. The light travels slowest in :
- (a) sulphuric acid (b) glass (c) water ~~(d) carbon disulphide~~
28. The refractive index of glass with respect to air is $\frac{3}{2}$ and the refractive index of water with respect to air is $\frac{4}{3}$. The refractive index of glass with respect to water will be :
- (a) 1.525 (b) 1.225 (c) 1.425 ~~(d) 1.125~~