4. The amplitude of the unpolarized light incident on the polarizer is 'a'. What will be the amplitude on the polarized light transmitted through it?

a. $\frac{a}{2}$ b. $\frac{a}{\sqrt{2}}$ c. $\sqrt{\frac{3}{2}}\,a$ d. $\frac{3}{4}\,a$

5. The critical angle of a certain medium is $\sin^{-1}(3/5)$. The polarizing angle of the medium is

a. $\tan^{-1}(4/5)$ b. $\tan^{-1}(5/3)$ c. $\tan^{-1}(3/4)$ d. $\tan^{-1}(4/3)$

6. A light beam is incident at θ on an interface of air glass such that angle between reflected and refracted beams is 90°, Then θ is

a. $\tan^{-1}(3/2)$ b. $\tan^{-1}2$ c. $\tan^{-1}(3/4)$ d. $\tan^{-1}(4/3)$

7. An unpolarized beam of light is incident on a group of four polarizing sheets which are arranged in such a way that the characteristic direction of each polarizing sheet makes an angle of 30° with that of the preceding sheet. The percentage of incident light transmitted by first polarizer will be

a. 20% b. 25% c. 50% d. 100%

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1. How do you confirm that light coming from the sky is partially polarized?
2. How do sunglasses reduce the glare of intense light?
3. Does the polarizing angle for a transparent medium depends upon the wavelength of light? Explain with appropriate mathematical expression.
4. How would you obtain plane polarized light by reflection? A ray of light incident on a glass plate at an angle of 33^0 with its surface. If the reflected and refracted light are perpendicular to each other, what is the index for refraction of glass? What is the angle of refraction? [**Ans: 1.539; 33°**]
5. Two polaroids are perpendicular to each other and the final transmitted intensity is zero. What will be the effect on the intensity of light transmitted through a third polaroid placed between the previous two polaroids bisecting the angle between them?
6. How would you show that light waves are transverse in nature? [for 2 marks]
7. What does polarization property verify? At what angle of incidence, the reflected ray becomes plane polarized for monochromatic light of wavelength *5896A°* in air is passed to a transparent medium at which the wavelength becomes *3931A°*? [***Ans: 56.31°***]

[Hint: $\mu = tan\theta_p$ $\mu = \frac{c}{v}$ ${}_a\mu_w = \frac{\mu_w}{\mu_a} = \frac{(c/v)_w}{(c/v)_a} = \frac{v_a}{v_w} = \frac{\lambda_a f}{\lambda_w f}$

i.e., $\mu = \frac{\lambda_a}{\lambda_w} = tan\theta_p$ solve and find θ_p.