

① No when a beam of light passes through a prism, there is no spectrum. Actually spectrum is produced by the deviation of different colours due to the refraction of light. When a white light passes through a hollow prism it escapes out as it entered because no refraction takes place.

② Two different components of white light deviate from different \angle 's when it passes through a triangular glass prism. It happens because the light is made up of 7 different colours and when they hit the prism they act differently. After hitting the prism, the white light gets dispersed into 7 constituent light depending on the refractive index of each wavelength.

③ RT of the prism, $\mu = \sqrt{2}$

\angle of the prism, $A = 60^\circ$

For min \angle of deviation we have $i = e$

$$i = \frac{A + \delta_m}{2}, \quad \delta - \text{min deviation}$$

$$\mu = \frac{\sin \frac{A + \delta_m}{2}}{\sin \frac{A}{2}}$$

$$\sqrt{2} = \frac{\sin i}{\sin \frac{60}{2}}$$

$$\begin{aligned} \sin i &= \sqrt{2} \times \sin 30 \\ &= \frac{1}{\sqrt{2}} \end{aligned}$$

$$i = 45^\circ$$