A thin prism P_1 with angle 4° and made from glass of refractive index 1.54 is combined with another prism P_2 made from glass of refractive index 1.72 to produce dispersion without deviation. the angle of prism P_2 is :

A 5.33°

B 4°

C 3°

D 2.6°

Solution

Correct option is C)

For dispersion without deviation,

$(\mu_1 - 1) \times A_1 = (\mu_2 - 1) \times A_2$

$\mu_1 = 1.54, A_1 = 4°, \mu_2 = 1.72$

$(1.54 - 1) \times 4 = (1.72 - 1) \times A_2$

$\Rightarrow A_2 = 3°.$