Bicycle Helmets Problem

Solution: The required probability of pickimg helmets is given by

$$p = \frac{\text{Favourable cases}}{\text{Total cases}}. \qquad \ldots(1)$$

Now total cases $= 6!$.

Favourable cases $= C\binom{6}{3}.3!\left(\frac{1}{2!}-\frac{1}{3!}\right)$

$$= \frac{6!}{3!3!}.2$$

$$= 40.$$

Putting these values in (1), we get

$$p = \frac{40}{6!} = \frac{1}{18}. \quad \text{Ans.}$$

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