



Permutations Ex 16.3 Q1(i)

We have,

$$\begin{aligned} {}^8P_3 &= \frac{8!}{(8-3)!} \left[ \because {}^nP_r = \frac{n!}{(n-r)!} \right] \\ &= \frac{8 \times 7 \times 6 \times 5!}{5!} \\ &= 336 \end{aligned}$$

Hence,  ${}^8P_3 = 336$

Permutations Ex 16.3 Q1(ii)

We have,

$$\begin{aligned} {}^{10}P_4 &= \frac{10!}{(10-4)!} \left[ \because {}^nP_r = \frac{n!}{(n-r)!} \right] \\ &= \frac{10!}{6!} \\ &= \frac{10 \times 9 \times 8 \times 7 \times 6!}{6!} \\ &= 5040 \end{aligned}$$

$\therefore {}^{10}P_4 = 5040$

Permutations Ex 16.3 Q1(iii)

We have,

$$\begin{aligned} {}^6P_6 &= \frac{6!}{(6-6)!} & \left[ \because {}^nP_r = \frac{n!}{(n-r)!} \right] \\ &= \frac{6!}{0!} \\ &= \frac{6 \times 5 \times 4 \times 3 \times 2 \times 1}{1} & \left[ \because 0! = 1 \right] \\ &= 720 \end{aligned}$$

Hence,  ${}^6P_6 = 720$

Permutations Ex 16.3 Q1(iv)

We have,

$$\begin{aligned} P(6, 4) &= \frac{6!}{(6-4)!} & \left[ \because {}^nP_r = \frac{n!}{(n-r)!} \right] \\ &= \frac{6!}{2!} \\ &= \frac{6 \times 5 \times 4 \times 3 \times 2 \times 1}{2!} \\ &= 360 \end{aligned}$$

Hence,  $P(6, 4) = 360$

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