Permutations Ex 16.3 Q1(i)

We have,

$${}^{8}P_{3} = \frac{8!}{(8-3)!} \quad \left[\because {}^{n}P_{r} = \frac{n!}{(n-r)!}\right]$$

$$= \frac{8 \times 7 \times 6 \times 5!}{5!}$$

$$= 336$$

Hence, ${}^{8}P_{3} = 336$

Permutations Ex 16.3 Q1(ii)

We have,

$${}^{10}P_{4} = \frac{10!}{(10-4)!} \qquad \left[\because \quad {}^{n}P_{r} = \frac{n!}{(n-r)!}\right]$$

$$= \frac{10!}{6!}$$

$$= \frac{10 \times 9 \times 8 \times 7 \times 6!}{6!}$$

$$= 5040$$

$$\therefore \quad {}^{10}P_{4} = 5040$$

Permutations Ex 16.3 Q1(iii)

We have,

$$^{6}P_{6} = \frac{6!}{(6-6)!} \qquad \left[\because \ {}^{n}P_{r} = \frac{n!}{(n-r)!}\right]$$

$$= \frac{6!}{0!}$$

$$= \frac{6\times5\times4\times3\times2\times1}{1} \quad [\because \ 0! = 1]$$

$$= 720$$

Hence, $^{6}P_{6} = 720$

Permutations Ex 16.3 Q1(iv)

We have,

$$P(6,4) = \frac{6!}{(6-4)!} \qquad \left[\because \ {}^{n}P_{r} = \frac{n!}{(n-r)!}\right]$$

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

$$= \frac{6\times5\times4\times3\times2\times1}{2!}$$

$$= 360$$

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

********** END **********