Permutations Ex 16.3 Q19

Total number of letters = 6

$\therefore$ Total number of words

= Number of arrangements of 6 letters, taken 4 at a time = ${}^{6}P_{4}$

$$= \frac{6!}{(6-4)!}$$

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

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

$$= 360$$

Hence, the total number of 4 letter words are 360.

Permutations Ex 16.3 Q20

The odd number digits are 1,3,5,6,9.

Total number of odd digits = 5

$\therefore$ Required number of 3 digit numbers

= number of arrangenments of 5 digits by taking 3 at a time

$$= {}^{5}P_{3}$$

$$= \frac{5!}{(5-3)!}$$

$$= \frac{5!}{2!}$$

$$= \frac{5\times4\times3\times2!}{2!}$$

$$= 60$$

Hence, total number of 3 digit numbers are 60

Permutations Ex 16.3 Q21

Total number of letters = 5

$\therefore$ Total number of words

= Number of arrangement of 5 letters, taken 5 at a time

$= {}^{5}P_{5}$

$= \frac{5!}{(5-5)!}$

$= \frac{5!}{0!}$

$= 5! \qquad [\because 0! = 1]$

$= 5 \times 4 \times 3 \times 2 \times 1$

$= 120$

Hence, the number of words are 120

Permutations Ex 16.3 Q22

Total number of letters = 8

$\therefore$ Total number of words

= Number of arrangements of 8 letters, taken 8 at a time

$= {}^{8}P_{8}$

$= \frac{8!}{(8-8)!}$

$= \frac{8!}{0!}$

$= 8! \qquad [\because 0! = 1]$

Hence, total number of words are 8!

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