

Permutations Ex 16.5 Q1(v)

There are 8 letters in the word 'PAKISTAN' out of which 2 are A'S, and the rest are all distinct.

So, the total number of words

$$=\frac{8!}{2!}$$

$$= \frac{8 \times 7 \times 6 \times 5 \times 4 \times 3 \times 2!}{2!}$$

$$= 8 \times 7 \times 6 \times 5 \times 4 \times 3$$

= 20160

Permutations Ex 16.5 Q1(vi)

There are 6 letters in the word 'RUSSIA' out of which 2 are S's, and the rest are all distinct.

So, the total number of words

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

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

$$=6 \times 5 \times 4 \times 3$$

= 360

Permutations Ex 16.5 Q1(vii) There are 6 letters in the word 'SERIES' out of which 2 are S's, 2 are E's and the rest are all distinct.

so, the total number of words

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

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

$$=6 \times 5 \times 2 \times 3$$

Permutations Ex 16.5 Q1(viii)

There are 9 letters in the word 'EXERCISES' out of which 3 are E's, 2 are S's and the rest are all distinct.

So, the total number of words

$$=\frac{9\times8\times7\times6\times5\times4\times3!}{3!\times2\times1}$$

$$=9\times8\times7\times6\times5\times2$$

= 30240

Permutations Ex 16.5 Q1(ix) There are 14 letters in the word 'CONSTANTINOPLE' out of which 2 are 0's, 3 are N's, 2 are T's and the rest are all distinct.

So, the total number of words =
$$\frac{14!}{2!3!2!}$$

$$=\frac{14!}{2\times3\times2\times2}$$

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