Short Answer Type Questions

Q. 1. In how many ways can the letters of the word 'ABACUS' be arranged such that the vowels always appear together.   [DDE-2017]

Sol. In the ABACUS, there are 3 vowels -2 A's and U.

Number of letters in ABACUS are 6.

Let us take the vowels as one, so number of letters now = 4

∴ Number of ways in which vowels occur together = 4!

But the 3 vowels can rearrange amongst themselves in $\frac{3!}{2!}$ ways as 'A' appears twice.

Hence, the total number of ways which vowels occur together $= 4! \times \frac{3!}{2!} = 72$

Q. 2. In how many ways can the letters of the word 'PENCIL' be arranged so that I is always next to L.

Sol. There are 6 letters in the word 'PENCIL'

Consider LI as one letter. Now 5 Letters (P,E,N,C,I,L) can be arranged in
$^5P_5 = 5! = 120$ ways.

Hence, the total number of ways in which *I* is always next to L is 120.