Question Nos.

Q 1

Ans

1) Asymptotic Defines that a function is tending to one axis you can say like it is a limit Example or Asymptotic function could be e^2.

2) Asymptotic notation in Data Structures are used to Represent time Complexities of your Algorithm.

3) It tells about the worst, average and Best Case time Complexity i.e time taken to execute a particular algorithm or Code.

4) The denotions or Best, Worst and average Case are:

O (Big O) → Worst Case

Ω (Omega) → Best Case

Θ (thetu) → Average Case.

Question Nos. | Marks Awarded

5) But In data structure we Always Consider that what is the worst Case or An Algorithm or Code that defina that how Much Computational power Computer Consumes to Execute.

6) Ex:
```
int count = 0
for (int i = 0 ; i < n ; i++) {
    count ++;
}
```
In this Code the loop has time complexity of O(n) and the Count variable updation has O(1)
Time Complexity = O(n)

7) $O(1) < O(\log n) < O(\sqrt{n}) < O(n) < O(n^2) < O(n^3) \ldots < O(2^n) < O(n!) < O(n^n)$
This is an increasing order (growth func)