Data Structures and Algorithm (CI-303)   **Date of submission: 4ᵗʰ sept,2023**

Assignment No: 01

Q.1 How do you find the complexity of an algorithm? What is the relation between the time and space complexities of an algorithm?

Q.2 What is Abstract data type? Explain different types of ADT.

Q.3   What is the time complexity of the following code : Need Explanation with answer

void function(int n)

```
{
   int i = 1, s = 1;
   while (s < n) {
      s = s + i;
      i++;
   }
}
```

Q.4 What is the time, and space complexity of the following code: Need Explanation with answer

```
int a = 0, b = 0;
for (i = 0; i < N; i++) {
   a = a + rand();
}
for (j = 0; j < M; j++) {
   b = b + rand();
}
```

Q.5 Explain all types of asymptotic notations in detail? (Include graph, formula, theory, example)

Q. 6. Explain types of data structures.