**Question 1**

**What is the time, space complexity of following code:**

**int a = 0, b = 0;**

**for (i = 0; i < N; i++) { a = a + 1; }**

**for (j = 0; j < M; j++) { b = b + j; }**

**Answer**

**Both time and space complexity will be O(n), as both are sequential loops running ‘N’ and ‘M’ times, taking (N+M) unit time and creating memory blocks for ‘a’ and ‘b’ for (N+M) times.**

**Question 2**

**What does it mean when we say that an algorithm X is asymptotically more efficient than Y?**

**a)X will be a better choice for all inputs**

**b)X will be a better choice for all inputs except possibly small inputs**

**c)X will be a better choice for all inputs except possibly large inputs**

**d)Y will be a better choice for small inputs**

**Answer**

**a)X will be a better choice for all inputs**