

Department of Electrical and Computer Engineering
North South University
CSE 373
Quiz 1
Section 2

You are required to answer the following questions and submit it via the google classroom. You can either submit a typed answer or you can take a snapshot of the handwritten answer and submit. You have a total of 50 minutes to submit the quiz.

- 1 Consider the following function: 5

```
int mystery(int n)
{
    int answer;
    if (n > 0)
    {
        answer =(mystery(n-2)+3*mystery(n/2) + 5);
        return answer;
    }
    else
        return 1;
}
```

Write down the complete recurrence relation, $T(n)$, for the running time of `mystery(n)`. Be sure you include a base case. You do not have to solve this relation, just write it down

2. Both mergesort and quicksort use the divide and conquer approach to solve 5
the sorting algorithm. Explain how the two sorting algorithms differ in the way
the divide and combine step is used

3. Solve the recurrence relation: 10

$$T(n) = c, n = 1$$

$$T(n) = 2T(n/2) + c, n > 1$$