Test Name: FPRT

Module Name: Core CSE

Test Duration: 2 hrs   **Max Marks:** 50

Instructions:

1. Plagiarism is **Not allowed**, if found plagiarized at any point during the course (even for previous submissions) then it will be a breach of ISA.
2. Passing marks of the test (Min 60% of max marks).
3. Write the test in a word document or in notepad.
4. Push answer file in GitHub repository.
5. Submission links (GitHub) should be submitted after the completion of the test into the dashboard.

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Q1. List out different OOPS principles and explain with examples. (10marks)

Q2. Explain data structures that are mutable versus immutable. (5 marks)

Q3. Construct a binary tree using in-order and post-order traversal given below.

Inorder Traversal: 9, 3, 15, 20, 7

Post-Order Traversal: 9, 15, 7, 20, 3 (10 marks)

Note: You would need to explain all the steps.

Q4. Construct a binary search tree using pre order traversal given below.

Pre order Traversal: 50 30 20 40 70 60 80 (10 marks)

Note: You would need to explain all the steps.

Find the Time complexity of the following three pieces of code: (5 marks, each)
Q5.
```
for(let i = 0;i<n;i++){
        j = 1;
        while(j<n){
                console.log(i)
                j = j*2
                }
        }
```
(5 marks)

Q6.
```
i = 1;
while(i²<n){
i+=1}
```

(5 marks)

Q7.

```
function bblSort(arr){

for(var i = 0; i < arr.length; i++){
break;
for(var j = 0; j < ( arr.length - i -1 ); j++){
        if(arr[j] > arr[j+1]){
        var temp = arr[j]
        arr[j] = arr[j + 1]
        arr[j+1] = temp
        }
}
}
console.log(arr);
}
```
(5 marks)