**St. Joseph’s College (Autonomous), Bangalore**

**Date: 24-4-19**

**II Semester Examination, April 2019**

**B.Sc Computer Science**

**CS 215 : Data Structures and Operating Systems**

 **Supplementary candidates only.**

**Attach the question paper with the answer booklet**

**Time 2.5Hrs Max Marks 70**

**PART-A**

**Answer all TEN questions 2 x10 = 20**

1. What is Operating Systems? Explain its features.

2. Explain system calls in detail.

3. What is a process? What are its different states?

4. Give the difference between internal and external fragmentation.

5. Explain any hierarchical structure in detail.

1. What do you mean by primitive and non primitive data structures? Give examples.
2. Write a note on Best and Worst case situations of complexity of linear search.
3. What are stacks? Explain the memory representation of a stack.
4. What is a linked list? Mention the operations of a link list.
5. What is a binary search tree? Give an example.

**PART-B**

**Answer any FIVE questions 6 x5 = 30**

1. Explain single user operating systems in detail.
2. Explain any two methods of process scheduling with a suitable example.
3. Explain demand paging in detail.
4. Mention and explain the operations on non primitive data structures.
5. Convert the following expression from infix to postfix: **A+B\*C-D/F** and also evaluate the postfix expression where A=2,B=3,C=4,D=6,F=2.
6. Write an algorithm to delete a node from the end of the link list.
7. Explain tree traversal in detail with an example.

**PART-C**

**Answer any TWO questions 10 x2 = 20**

1. A. Explain the components process control block in detail.
2. Explain LRU page replacement algorithms in detail.
3. Explain any two disk scheduling algorithms in detail.
4. A. What is sorting? Write an algorithm for Insertion sort.

B. Explain Pre order and In order traversal in detail. (5+5)