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| **ST. JOSEPH’S COLLEGE (AUTONOMOUS), BANGALORE-27** |
| **B.Sc - II SEMESTER** |
| **SEMESTER EXAMINATION: APRIL 2019** |
| **CS 218- Data Structures And Operating Systems** |
|  |  |  |  |  |  |  |
| **Time- 2 1/2 hrs** |  | **Max Marks-70** |  |

**PART A**

**Answer ALL the questions: 10\*2=20 Marks**

1. Mention the types of Data Structures.
2. Give any two applications of queues.
3. What is the purpose of malloc () function? Give its syntax.
4. Give the complexity analysis of linear search.
5. Define the following
	* 1. Degree of a tree
		2. Level of a tree.
6. What is a system program? Give an example.
7. Mention the states of a process with a diagram.
8. Define Context switching.
9. What is Pre Emptive scheduling?
10. Define Spooling.

**PART B**

**Answer any FIVE of the following: 5\*6=30 Marks**

1. Explain the two important requirements of an algorithm with examples.
2. Define a node and write an algorithm to create a link list.
3. Write an algorithm for binary search and explain its time complexity.
4. With a block diagram write a note on components of an operating system.
5. Write a detailed note on multiprocessor type of operating system.
6. Explain the process control block in detail.
7. Explain PRIORITY Scheduling with example.

**PART C**

**Answer any TWO of the following 2\*10=20 Marks**

1. With a neat block diagram explain in detail about LONG TERM , SHORT TERM and MEDIUM TERM schedulers.

A) Write an algorithm for Dequeue operation on circular queues. **5 Marks**

b) Convert the given infix expression to postfix. **5 Marks**

 **A+B-C\*D/E+F-G**

1. Define **2 Marks each**
	* 1. Blocking Factor
		2. Complete binary tree
		3. Binary search tree
		4. AVL rotation
		5. Full Binary Tree