Date:

Registration number:



ST. JOSEPH’S COLLEGE (AUTONOMOUS), BENGALURU-27

BSc (COMPUTER SCIENCE)

SUPPLEMENTARY EXAMINATION: APRIL 2022

(Examination conducted in July 2022)

**CS 218: Data Structures and Operating System**

Time- 2 ½ hrs Max Marks-70

This question paper contains one printed page and THREE parts

**PART A**

**Answer the following questions (10\*2=20 marks)**

1. Define operating system. List the services provided by the operating system.
2. Differentiate between a process and a program
3. What is a scheduler? Mention its types.
4. Define seek time, transfer time rotational time
5. Whatare the different operations performed on files?
6. Define asymptotic notations and name any two notations.
7. Mention the differences between linear queue and circular queue.
8. What is a grounded link list?
9. What is a binary search tree?
10. What is AVL rotation ?

**PART B**

**Answer any five of the following questions (5\*6=30 marks)**

11. Explain the role of an operating system as a guardian accountant.

12. Explain the working of single contiguous memory allocation policy.

13.With an example illustrate the working of SFJ and FCFS CPU scheduling algorithm.

14. Mention and explain the operations of linear data structures with examples.

15. What are the different operations of a stack? Explain with the algorithms.

16. Convert the following infix expression to postfix: **A+B/C\*D+E/H\*F-J+K**

17. Write an algorithm to add a node at a given position of the link list.

**PART C**

**Answer any two of the following questions (2\*10= 20 marks**)

18.Explain the working of long term and short-term schedulers in detail with an example

19. With an example explain the working of the SSTF and FCFS disk scheduling algorithms in detail.

20. Explain INSERT operation of circular queues with algorithm.