



**GN-449**

23

III Semester B.C.A. Examination, December - 2019  
(CBCS) (F+R) (2015-16 and Onwards) (Y2K14)

**COMPUTER SCIENCE**  
**BCA 305 - Operating System**

Time : 3 Hours

Max. Marks : 100

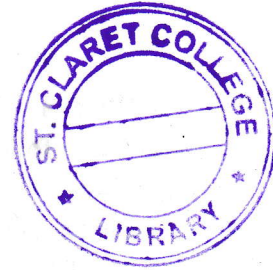
*Instruction : Answer all the Sections.*

**SECTION - A**

**10x2=20**

I. Answer any ten questions :

1. What is an Operating System ? State the different types of operating systems.
2. Explain Aging.
3. What is Spooling ?
4. What is a Safe State ?
5. What is Virtual Machine ?
6. What is Hit Ratio ?
7. Define Thrashing.
8. Mention any two file attributes.
9. What is context switching ?
10. Define Page Fault.
11. What is a Computer Virus ?
12. What do you mean by Address Binding ?



**P.T.O.**



## SECTION - B

II. Answer any five questions :

5x5=25

13. What are parallel systems ? Explain its types.
14. How deadlock can be recovered ? Explain any one type of recovery method.
15. Explain Swap instruction with its advantages.
16. What is a Semaphore ? Explain Binary Semaphore.
17. Explain the following :
  - (a) Physical Address space
  - (b) Logical Address space
18. Explain non-preemptive scheduling.
19. What is fragmentation ? Explain the types of fragmentation.
20. Explain Demand paging with a neat diagram.

## SECTION - C

III. Answer any three questions :

3x15=45

21. Consider the following set of 5 processes whose arrival time and burst time are given below :

Process ID	Arrival time	Burst time
P1	0	5
P2	1	3
P3	2	1
P4	3	2
P5	4	2

Round Robin time quantum = 2 units. Draw the Gantt chart and calculate average waiting time and average turn around time for FCFS, SJF (non preemptive) and Round Robin algorithms.

22. (a) Explain Peterson's solution to the mutual exclusion problem. 7
- (b) Describe the following : 8
- (i) Monitors
  - (ii) No-preemption



23. Describe the working of the following : 8
- (a) Critical section problem
  - (b) Contiguous Allocation and Indexed Allocation. 7
24. (a) Describe the SSTF disk scheduling algorithm with example. 8
- (b) Explain the different components of Linux system. 7
25. Draw the queuing diagram of 3 types of schedulers and Explain Medium Term and Long Term schedulers. 15

#### SECTION - D

IV. Answer any one questions :

1x10=10

26. Explain Dining philosopher's problem and solution.
27. Describe :
- (a) Context switching 5
  - (b) System calls 5