

**18U670S**

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Name: .....

Reg. No.....

**SIXTH SEMESTER B.C.A. DEGREE EXAMINATION, APRIL 2021**

(CUCBCSS-UG)

**CC15U BCA6 B15 - OPERATING SYSTEMS**

(Computer Application – Core Course)

(2015, 2016 Admissions - Supplementary)

Time: Three Hours

Maximum: 80 Marks

**PART A**

Answer *all* questions. Each question carries 1 mark.

1. What is degree of multiprogramming?
2. What is hit ratio?
3. No preemption is necessary condition for the occurrence of .....
4. Virtual memory is commonly implemented by .....
5. Interval between time of submission and completion of a job is called .....
6. What is critical section?
7. What is starvation?
8. In an access matrix, what is the meaning of (i,j)<sup>th</sup> entry of the matrix.
9. .... is a technique of temporarily moving inactive programs from memory of the computer system.
10. Expand SJF.

**(10 × 1 = 10 Marks)**

**PART B**

Answer *all* questions. Each question carries 2 marks.

11. Explain the concept of overlays in memory management.
12. Differentiate between authentication and authorization.
13. What is race condition?
14. In process synchronization what is the importance of semaphore.
15. Explain about dynamic loading.

**(5 × 2 = 10 Marks)**

**PART C**

Answer any *five* questions. Each question carries 4 marks.

16. Explain about the contiguous allocation of disk space.
17. What are the different ways of implementing inter process communication?
18. What is an operating system? Explain the functions and evolution.

19. What is deadlock? What are the necessary conditions for the occurrence of a deadlock?
20. Write a note on Dining Philosopher problem.
21. Explain about various file allocation methods.
22. Differentiate between long term and short term schedulers.
23. Differentiate between segmentation and swapping.

**(5 × 4 = 20 Marks)**

### PART D

Answer any *five* questions. Each question carries 8 marks.

24. Explain Peterson solution to critical section problem by illustrating the structure of a process say P1.
25. Discuss any four CPU scheduling algorithms.
26. Explain the concept of virtual memory.
27. Consider the following set of processes, with the length of the CPU burst given in milliseconds:

| Process | Burst Time | Arrival Time |
|---------|------------|--------------|
| P1      | 10         | 0            |
| P2      | 1          | 1            |
| P3      | 2          | 1.5          |
| P4      | 1          | 3            |
| P5      | 5          | 4            |

Apply SJF and FCFS and find average waiting time and turnaround time for executing the processes.

28. Explain with the help of necessary diagrams the File System and Directory Implementation.
29. Explain about any two page replacement algorithm.
30. With the help of a neat diagram explain about segmentation.
31. Explain the working of demand paging.

**(5 × 8 = 40 Marks)**

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