18U670   (Pages: 2)   Name: ……………..……….

Reg. No…………..………

SIXTH SEMESTER B.C.A. DEGREE EXAMINATION, APRIL 2021
(CUCBCSS-UG)
CC17U BCA6 B12 - OPERATING SYSTEMS
(Computer Application – Core Course)
(2017 Admissions - Regular)

Time: Three Hours   Maximum: 80 Marks

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

1. What is an operating system?

2. Which system call is used to create a process?

3. Define a process.

4. What is the objective of time sharing operating system?

5. To avoid race condition, what is the number of processes that may be simultaneously inside the critical section.

6. What is meant by authentication?

7. Define the term hit ratio.

8. What is compaction and why it is used?

9. Why page sizes are always power of 2?

10. Write any four operators used in shell programming.

(10 × 1 = 10 Marks)

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

11. Why an operating system is known as "Resource manager"?

12. Differentiate user level threads from kernel level threads.

13. How performance of demand paging can be measured.

14. List out the two primitive operations used in the implementation of a semaphore.

15. Which are the special characters in shell programming?

16. What are the minimum requirements that should be satisfied by a solution to a critical section problem?

17. Explain the goals of protection.

18. What is thrashing? What is the cause of thrashing?

(8 × 2 = 16 Marks)

Part III

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

19. Explain in detail the necessary conditions that cause the deadlock to occur.

20. Write an algorithm to implement mutual exclusion using test () and set () instruction.

21. Consider the following page reference string:

    1,2,3,4,2,1,5,6,2,1,2,3,7,6,3,2,1,2,3,6

    How many page faults would occur for the optimal page replacement algorithm, assuming three frames and all frames are initially empty.

22. Compare first fit, best fit and worst fit allocation of memory.

23. Explain the different file accessing methods.

24. With the help of a diagram, explain the different states of a process.

25. Explain producer consumer problem in detail.

26. Explain the conditional and iterative commands in shell script with an example.

27. What are scheduling queues? Explain the queuing diagram representation.

(6 × 4 = 24 Marks)

Part IV

Answer any *three* questions. Each question carries 10 marks.

28. Discuss deadlock avoidance using Banker's algorithm with suitable example.

29. Explain the concept of paging in detail.

30. What is mean by CPU scheduling? State the various criteria used for the selection of any scheduling algorithm. Discuss in detail any three pre-emptive scheduling algorithms.

31. Compare and contrast Multiprogramming, Multitasking and Multiprocessing.

32. Explain resource allocation graph algorithm for deadlock detection with relevant diagram.

(3 × 10 = 30 Marks)

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