REV-01
BCA/53/58

2024/05

SET A

BACHELOR OF COMPUTER APPLICATION
FOURTH SEMESTER
OPERATING SYSTEM
BCA-401

[USE OMR SHEET FOR OBJECTIVE PART]

Duration: 3 hrs. **Full Marks: 70**

(Objective)

Time: 30 mins. **Marks: 20**

Choose the correct answer from the following: ***1×20=20***

1. Which is not an application software?
   a. Windows NT
   b. Page Maker
   c. WinWord XP
   d. Photoshop

2. Which is the first program run on a computer when the computer boots up?
   a. System software
   b. Operating system
   c. System operations
   d. Application Software

3. Which of the following memory unit that processor can access more rapidly?
   a. Main Memory
   b. Virtual Memory
   c. Cache Memory
   d. Read Only Memory

4. Which of the following is not a condition for deadlock?
   a. Mutual exclusion
   b. Hold and wait
   c. Preemption
   d. Circular wait

5. In which of the following procedures, a base register is used?
   a. Static relocation
   b. Dynamic relocation
   c. Static partitioning
   d. Swapping

6. Which of the following is not a valid page replacement algorithm?
   a. LRU
   b. NRU
   c. FIFO
   d. LIFO

7. Piece of code that only one thread can execute at a time is called:
   a. Critical Section
   b. Synchronization
   c. Mutual exclusion
   d. Scheduling

8. Banker's algorithm can:
   a. Avoid deadlocks
   b. Detect deadlocks
   c. Prevent deadlocks
   d. Recover from deadlocks

9. Suppose that a process is in 'BLOCKED' state waiting for some I/O service. When the service is completed, it goes to the:
   a. RUNNING state
   b. READY state
   c. SUSPENDED state
   d. TERMINATED state

10. A memory buffer used to accommodate a speed differential is called.....
    a. Stack pointer
    b. Cache
    c. Accumulator
    d. Disk buffer

11. Run time mapping from virtual to physical address is done by.....
    a. MMU
    b. CPU
    c. PCI
    d. ALU

12. Memory Management technique in which system stores and retrieves data from secondary storage for use in main memory is called?
    a. Fragmentation
    b. Mapping
    c. Paging
    d. Buffer

13. Program always deals with:
    a. Logical address
    b. Absolute address
    c. Physical address
    d. Relative address

14. A minimum of..... variables is/are share required to be shared between processes to solve the critical section problem.
    a. One
    b. Two
    c. Three
    d. Four

15. Which of the following requires a device driver?
    a. Register
    b. Cache
    c. Main memory
    d. Disk

16. BIOS is used?
    a. By operating system
    b. By compiler
    c. By interpreter
    d. By application software

17. What is the full name of the DSM?
    a. Direct system module
    b. Direct system memory
    c. Demoralized system memory
    d. Distributed shared memory

18. If the page size increases, the internal fragmentation is also?
    a. Decreases
    b. Increases
    c. Remains constant
    d. None of these

19. Which command is used to display the content of a text in Linux?
    a. copy con
    b. type
    c. display
    d. echo

20. Who provides the interface to access the services of the operating system?
    a. API
    b. System Call
    c. Library
    d. Assembly Instruction

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Descriptive

Time : 2 hr. 30 mins. Marks : 50

[Answer question no.1 & any four (4) from the rest]

1. What is a semaphore? Explain the Sleeping Barber problem with algorithm. 2+8=10

2. a) Write the functions of Operating System. 5
   b) Write the functions of following commands: 5
   i) MD ii) CD iii) TREE iv) Copy Con v) Type

3. Consider the following set of processes. The length of the CPU burst time in milliseconds, and the priority of each of the processes are as follows: 5+5=10

Process	Burst time	Priority
P1	8	3
P2	3	1
P3	4	3
P4	5	2
P5	1	2

   The processes are assumed to have arrived in the order P1, P2, P3, P4, P5, all at time 0. Find out the average turnaround time, average waiting time, and average response time in SJF and RR (time quantum = 3).

4. How page fault occur? Explain the role of demand paging in virtual memory. What are page tables? 3+5+2=10

5. Write short notes on: 5+5=10
   a) Real Time Operating system
   b) Multiprogramming Operating system

6. a) Write the algorithm of Reader-Writer problem. 5
   b) What is Critical Section? Write the condition of Critical Section. 5

7. What is file structure? Explain the different directories of file structure. 2+2+6=10

8. What is meant by deadlock? How deadlock occurs? How we prevent the deadlock? 2+5+3=10

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