

**BACHELOR OF COMPUTER APPLICATION
THIRD SEMESTER
OPERATING SYSTEMS
BCA-303**

**SET
B**

[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

- If the page size increases, the internal fragmentation is also?
 - Decreases
 - Increases
 - Remains constant
 - None of these
- BIOS is used?
 - By operating System
 - By compiler
 - By Interpreter
 - By application Software.
- A process control Block (PCB) does not contain which of the following?
 - Code
 - Stock
 - Bootstrap Program
 - Data
- Program always deals with
 - Logical address
 - absolute address
 - Physical address
 - relative address
- Which of the following requires a device driver?
 - Register
 - Cache
 - Main memory
 - Disk
- A minimum of _____ variables is /are share required to be shared between processes to solve the critical section problem
 - One
 - Two
 - Three
 - Four
- What is the full name of the DSM?
 - Direct system module
 - Direct system memory
 - Demoralized system memory
 - Distributed shared memory
- Who provides the interface to access the services of the operating system?
 - API
 - System Call
 - Library
 - Assembly Instruction
- Which is not application software?
 - Windows NT
 - Page Maker
 - WinWord XP
 - Photoshop
- Memory Management technique in which system stores and retrieves data from secondary storage for use in main memory is called?
 - Fragmentation
 - Mapping

- c. Paging
- d. Buffer
11. 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
 12. Piece of code that only one thread can execute at a time is called
 - a. Critical Section
 - b. Synchronization
 - c. Mutual exclusion
 - d. Scheduling
 13. In which of the following procedures, a base register is used?
 - a. Static relocation
 - b. Dynamic relocation
 - c. Static partitioning
 - d. Swapping
 14. 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
 15. 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
 16. Which of the following is not a valid page replacement algorithm?
 - a. LRU
 - b. NRU
 - c. FIFO
 - d. LIFO
 17. Banker's algorithm can
 - a. Avoid deadlocks
 - b. Detect deadlocks
 - c. Prevent deadlocks
 - d. Recover from deadlocks
 18. Which of the following is not a condition for deadlock?
 - a. Mutual exclusion
 - b. Hold and wait
 - c. Preemption
 - d. Circular wait
 19. A memory buffer used to accommodate a speed differential is called __.
 - a. Stack pointer
 - b. Cache
 - c. Accumulator
 - d. Disk buffer
 20. Run time mapping from virtual to physical address is done by _____.
 - a. MMU
 - b. CPU
 - c. PCI
 - d. ALU

(Descriptive)

Time : 2 hrs. 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 difference between paging and segmentation 5
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 note on: 5+5=10
 - i) Real Time Operating system
 - ii) Multiprogramming Operating system
6. a. Explain LRU method of Page replacement algorithm with example. 5
b. What is critical Section? Write the condition of Critical Section. 5
7. What is file Management and Disk management? Describe Directory structure of file management. 2+2+6=10
8. What is meant by deadlock? How dead Lock Occur? How we prevent the deadlock. 2+5+3=10

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