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**Marks** 20.00/20.00

**Grade** **100.00** out of 100.00

## Question 1

Correct

Mark 1.00 out of 1.00

The primary goal of cryptography as a security mechanism is to \_\_\_\_\_.

- a. Ensure message authenticity
- b. Provide confidentiality through encryption ✓
- c. Ensure data integrity
- d. Detect malware

## Question 2

Correct

Mark 1.00 out of 1.00

What is the role of an interrupt in a device driver's operation?

- a. Notifies the CPU of device activity ✓
- b. Prevents CPU overloading
- c. Halts the device operation
- d. Handles data errors

## Question 3

Correct

Mark 1.00 out of 1.00

Virtual memory is a technique used to \_\_\_\_\_.

- a. Manage user authentication
- b. Increase the size of memory available ✓
- c. Secure files
- d. Manage network connections

**Question 4**

Correct

Mark 1.00 out of 1.00

What is the primary benefit of virtualization in cloud computing?

- a. Reduce storage costs
- b. Reduce hardware requirements ✓
- c. Increase network speed
- d. Enhance user interface design

**Question 5**

Correct

Mark 1.00 out of 1.00

The role of "load balancing" in a distributed system is to \_\_\_\_\_.

- a. Share memory between machines
- b. Distribute workloads across multiple servers to optimize resource usage ✓
- c. Synchronize data between servers
- d. Improve the graphical user interface

**Question 6**

Correct

Mark 1.00 out of 1.00

In modern operating systems, what does the term "kernel" refer to?

- a. The user interface
- b. The hardware component
- c. The core part of the operating system that manages system resources ✓
- d. The application layer

**Question 7**

Correct

Mark 1.00 out of 1.00

A high-traffic server with multiple disk requests needs to optimize disk performance by minimizing seek time. Which algorithm would be best suited to avoid starvation of certain requests?

- a. C-Scan ✓
- b. FCFS (First-Come, First-Served)
- c. SSTF (Shortest Seek Time First)
- d. LOOK

## Question 8

Correct

Mark 1.00 out of 1.00

Which type of malware modifies legitimate system files to conceal its presence?

- a. Rootkit ✓
- b. Virus
- c. Worm
- d. Adware

## Question 9

Correct

Mark 1.00 out of 1.00

Choose the CORRECT statement describing the Optimal page replacement algorithm.

- a. Is used in modern operating systems
- b. Is theoretical and requires future knowledge of page requests ✓
- c. Replaces the oldest page
- d. Is the slowest algorithm

## Question 10

Correct

Mark 1.00 out of 1.00

In the LOOK algorithm, the disk arm:

- a. Moves only as far as the last request before reversing ✓
- b. Moves to the beginning of the disk
- c. Continues moving in one direction regardless of requests
- d. Cycles through all sectors on the disk

## Question 11

Correct

Mark 1.00 out of 1.00

How does segmentation handle memory management?

- a. It divides memory into equal-sized pages
- b. It divides memory into logical units based on program structure ✓
- c. It swaps data between physical and virtual memory
- d. It avoids fragmentation by combining memory blocks

## Question 12

Correct

Mark 1.00 out of 1.00

The main advantage of using cloud computing for businesses is \_\_\_\_\_.

- a. Increased local server storage
- b. Centralized physical hardware
- c. On-demand scalability ✓
- d. Reduced user control over data

## Question 13

Correct

Mark 1.00 out of 1.00

Which company developed the MS-DOS operating system?

- a. Apple
- b. Microsoft ✓
- c. IBM
- d. Linux Foundation

## Question 14

Correct

Mark 1.00 out of 1.00

What is the purpose of a segment table in segmentation?

- a. To map virtual pages to physical frames
- b. To store base and limit addresses of segments ✓
- c. To store the size of each segment
- d. To maintain the size of each page

## Question 15

Correct

Mark 1.00 out of 1.00

In a multithreaded process, what best describes a thread?

- a. An independent process that operates on its own.
- b. A lightweight unit of execution within a process. ✓
- c. A separate operating system instance.
- d. A module that handles I/O operations.

## Question 16

Correct

Mark 1.00 out of 1.00

How does an I/O scheduler impact overall system performance in a high-load environment?

- a. By optimizing the sequence and priority of I/O requests ✓
- b. By increasing the memory allocation for I/O operations
- c. By reducing the frequency of interrupts
- d. By simplifying device driver interactions

## Question 17

Correct

Mark 1.00 out of 1.00

In a segmented memory system, what happens if a process tries to access memory outside its segment limit?

- a. A page fault occurs
- b. A segmentation fault occurs ✓
- c. The memory is allocated dynamically
- d. The segment grows automatically

## Question 18

Correct

Mark 1.00 out of 1.00

In a distributed system, what is the primary goal of fault tolerance?

- a. To minimize resource usage
- b. To reduce communication latency
- c. To ensure the system can recover from failures ✓
- d. To increase system complexity

## Question 19

Correct

Mark 1.00 out of 1.00

In deadlock prevention, which technique ensures that resources are allocated only when processes can hold them without waiting?

- a. Preemption
- b. Resource Ordering ✓
- c. Safe State
- d. Maximum Resource Demand

**Question 20**

Correct

Mark 1.00 out of 1.00

Virtual memory allows an operating system to use disk space to simulate additional RAM.

- a. TRUE ✓
- b. FALSE