

IT 14- Operating System Concepts

1. What is the primary function of an operating system?

- A. Managing hardware resources
- B. Managing software applications
- C. Both A and B
- D. None of the above

Answer: C. Both A and B

2. Which of the following is not a characteristic of an operating system?

- A. Multitasking
- B. Multithreading
- C. Single-tasking
- D. Multiprocessing

Answer: C. Single-tasking

3. What is the purpose of a CPU state?

- A. To indicate the current mode of operation
- B. To store the program counter
- C. To store the current instruction being executed
- D. All of the above

Answer: D. All of the above

4. Which memory management technique allows for non-contiguous allocation of memory?

- A. Paging
- B. Contiguous allocation

- C. Segmentation
- D. Demand paging

Answer: A. Paging

6. What is the purpose of demand paging?

- A. To reduce the amount of memory needed for a process
- B. To improve the performance of virtual memory systems
- C. To reduce the number of page faults
- D. All of the above

Answer: D. All of the above

7. What is the main advantage of segmentation over paging?

- A. Segmentation allows for faster access to memory
- B. Segmentation reduces external fragmentation
- C. Segmentation simplifies memory management
- D. Segmentation improves virtual memory performance

Answer: B. Segmentation reduces external fragmentation

8. What is cache coherence?

- A. The consistency of data stored in different caches
- B. The size of the cache memory
- C. The speed of accessing cache memory
- D. The process of caching data from secondary storage

Answer: A. The consistency of data stored in different caches

9. Which type of multiprocessor system provides uniform access to memory?

- A. Symmetric Multiprocessors (SMP)

- B. Asymmetric Multiprocessors (AMP)
- C. Uniform Memory Access (UMA)
- D. Non-Uniform Memory Access (NUMA)

Answer: C. Uniform Memory Access (UMA)

10. What is the primary advantage of mobile operating systems?

- A. Portability
- B. Security
- C. Resource management
- D. User interface customization

Answer: A. Portability

11. Which type of operating system is designed to manage real-time tasks with strict deadlines?

- A. Batch OS
- B. Time Sharing OS
- C. Network OS
- D. Real Time OS

Answer: D. Real Time OS

12. What is the main function of the Process Control Block (PCB)?

- A. To store information about a process
- B. To manage processor scheduling
- C. To control access to critical sections
- D. To synchronize processes

Answer: A. To store information about a process

13. What is the purpose of mutual exclusion in process synchronization?

- A. To prevent deadlocks
- B. To ensure only one process can access a shared resource at a time
- C. To allow processes to communicate with each other
- D. To prioritize processes based on their importance

Answer: B. To ensure only one process can access a shared resource at a time

14. What is the difference between symmetric and asymmetric multiprocessor systems?

- A. Symmetric systems have identical processors, while asymmetric systems have different processors.
- B. Symmetric systems have shared memory, while asymmetric systems have distributed memory.
- C. Symmetric systems have uniform access to memory, while asymmetric systems have non-uniform access.
- D. Symmetric systems have a single core, while asymmetric systems have multiple cores.

Answer: A. Symmetric systems have identical processors, while asymmetric systems have different processors.

15. What is the main advantage of NUMA (Non-Uniform Memory Access) architecture?

- A. Better performance for memory-intensive applications
- B. Lower cost compared to UMA systems
- C. Simpler hardware design
- D. Easier scalability for large systems

Answer: A. Better performance for memory-intensive applications

16. What is the primary function of a cache memory in a multiprocessor system?

- A. To store frequently accessed data
- B. To synchronize access to shared resources
- C. To manage processor scheduling
- D. To handle inter-process communication

Answer: A. To store frequently accessed data

17. Which type of operating system is designed for resource-constrained embedded devices?

- A. Real Time OS
- B. Mobile OS
- C. Distributed OS
- D. Embedded OS

Answer: D. Embedded OS

18. Which operating system is known for its user-friendly interface and extensive software library?

- A. Windows OS
- B. Ubuntu
- C. macOS
- D. Android OS

Answer: A. Windows OS

19. What is the main function of the Linux shell?

- A. To manage hardware resources

- B. To provide a graphical user interface
- C. To interpret user commands and execute them
- D. To store system configuration settings

Answer: C. To interpret user commands and execute them

20. Which shell scripting feature allows for the execution of commands based on specified conditions?

- A. Variables
- B. Flow Controls
- C. Loops
- D. Functions

Answer: B. Flow Controls

21. What is the purpose of positional parameters in shell scripting?

- A. To store the exit status of a command
- B. To represent the position of a process in the process hierarchy
- C. To pass arguments to a shell script
- D. To control the flow of execution in a script

Answer: C. To pass arguments to a shell script