**1. What is an operating system?**

A. A hardware component

B. A software that manages hardware and software resources

C. A network protocol

D. A type of programming language

Answer:B

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**2. How does an operating system ensure efficient multitasking?**

A. By using a single-core CPU

B. By managing hardware resources like CPU scheduling and memory management

C. By shutting down inactive processes

D. By limiting user access

Answer: B

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**3. Which of the following is NOT a process state in modern operating systems?**

A. New

B. Ready

C. Waiting

D. Debugging

Answer:D

---

**4. What is virtual memory?**

A. Memory that is physically located on a disk

B. A technique that allows the OS to use disk space as an extension of RAM

C. A type of physical RAM

D. A separate hardware component

Answer: B

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**5. How does the operating system manage file storage?**

A. By randomly organizing files

B. By providing a file system for organizing and accessing data

C. By storing all files in the cloud

D. By eliminating all temporary files

Answer: B

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**6. What is the main purpose of system protection in an OS?**

A. To enhance graphics performance

B. To control access to system resources

C. To manage file storage

D. To optimize network speed

Answer: B

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**7. Which of the following services does an operating system provide to assist application programs?**

A. Network management

B. Process management

C. Graphic design tools

D. Marketing analysis

Answer: B

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**8. What are system calls?**

A. A type of error message

B. Requests from programs to the OS for services

C. Commands for hardware initialization

D. Alerts for system updates

Answer: B

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**9. What is a key consideration in designing an efficient operating system?**

A. Visual aesthetics

B. The choice of hardware

C. Security and scalability mechanisms

D. The number of users

Answer: C

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**10. What is the difference between monolithic and modular kernels?**

A. Monolithic kernels are faster than modular kernels

B. Modular kernels are always less secure than monolithic kernels

C. Monolithic kernels provide all core services, while modular kernels break services into components

D. There is no difference

Answer: C

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**11. What is a virtual machine?**

A. A physical server

B. An isolated duplicate of physical hardware that allows multiple OS instances to run

C. A type of operating system

D. A graphical user interface

Answer: B

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