1. What programming principle emphasizes breaking down tasks into smaller, manageable parts to simplify problem-solving?

a) Sequential programming
b) Abstraction
c) Modularization
d) Multithreading

Answer: c) Modularization
Explanation: Modularization involves breaking down a program into smaller modules or functions, making it easier to manage and understand.

2. Which type of programming problem typically involves handling data communication between different systems or components?

a) Input/Output Problems
b) Multithreading Issues
c) Recursion Challenges
d) Memory Allocation Errors

Answer: a) Input/Output Problems
Explanation: Input/Output problems often arise when dealing with communication between various components or systems.

3. Asynchronous operations in programming allow for:

a) Sequential execution
b) Simultaneous execution

c) Random execution
d) Conditional execution

Answer: b) Simultaneous execution
Explanation: Asynchronous operations enable tasks to execute independently, allowing for simultaneous execution.

4. The speed gap in format conversion refers to:

a) The delay in data processing due to incompatible formats
b) The difference in processing speed between various file formats
c) The time taken to convert data from one format to another
d) The synchronization issues during format conversion

Answer: c) The time taken to convert data from one format to another
Explanation: The speed gap refers to the time delay encountered during the conversion of data from one format to another.

5. Which of the following is an example of an I/O interface?

a) USB
b) CPU
c) RAM
d) GPU

Answer: a) USB
Explanation: USB (Universal Serial Bus) is an example of an I/O interface commonly used for connecting external devices to a computer.

6. Programme Controlled I/O refers to:

a) Input/output operations controlled directly by the CPU
b) Input/output operations managed by external devices
c) Input/output operations controlled by the operating system
d) Input/output operations performed by application programs

Answer: a) Input/output operations controlled directly by the CPU
Explanation: Programme Controlled I/O involves direct control of input/output operations by the CPU rather than external devices or the operating system.

7. Which I/O handling technique involves the CPU pausing its current execution to handle a request from an external device?

a) Programme Controlled I/O
b) Interrupt Driven I/O
c) Asynchronous I/O
d) Concurrent I/O

Answer: b) Interrupt Driven I/O
Explanation: Interrupt Driven I/O involves the CPU interrupting its current execution to handle requests from external devices.

8. Concurrent I/O involves:

a) Simultaneous execution of multiple input/output operations
b) Sequential execution of input/output operations
c) Random execution of input/output operations

d) Parallel execution of input/output operations

Answer: a) Simultaneous execution of multiple input/output operations
Explanation: Concurrent I/O allows for the simultaneous execution of multiple input/output operations.

9. Which of the following is NOT a benefit of asynchronous operations?

a) Improved responsiveness
b) Simpler code structure
c) Enhanced scalability
d) Better resource utilization

Answer: b) Simpler code structure
Explanation: Asynchronous operations can sometimes lead to more complex code structures due to the need for handling callbacks or promises.

10. In the context of I/O, what does the term “blocking” refer to?

a) Halting the CPU’s execution to handle an I/O operation
b) Allowing other tasks to proceed while waiting for an I/O operation to complete
c) Pausing an I/O operation until data is available or the operation is complete
d) Completing an I/O operation without any interruptions

Answer: c) Pausing an I/O operation until data is available or the operation is complete
Explanation: Blocking refers to the process of pausing an I/O operation until the required data is available or the operation is completed.

11. Which type of I/O handling allows for the CPU to execute other tasks while waiting for I/O operations to complete?

a) Blocking I/O
b) Synchronous I/O
c) Asynchronous I/O
d) Interrupt-driven I/O

Answer: c) Asynchronous I/O
Explanation: Asynchronous I/O enables the CPU to execute other tasks while waiting for I/O operations to complete, thereby improving efficiency.

12. What is the primary advantage of interrupt-driven I/O over program-controlled I/O?

a) Faster execution
b) Greater control over I/O operations
c) Improved resource management
d) Increased responsiveness

Answer: d) Increased responsiveness
Explanation: Interrupt-driven I/O allows for increased responsiveness as the CPU can handle I/O requests as soon as they occur without waiting for program control.

13. Which programming concept involves executing multiple threads simultaneously to improve performance?

a) Parallelism
b) Recursion

c) Encapsulation
d) Inheritance

Answer: a) Parallelism
Explanation: Parallelism involves executing multiple threads or processes simultaneously to enhance performance.

14. Which term describes the process of converting data from one format to another in real-time?

a) Transcoding
b) Decoding
c) Parsing
d) Encoding

Answer: a) Transcoding
Explanation: Transcoding refers to the process of converting data from one format to another, often in real-time.

15. What is the purpose of I/O interfaces in computer systems?

a) To manage CPU operations
b) To control memory allocation
c) To facilitate communication with external devices
d) To optimize program execution

Answer: c) To facilitate communication with external devices
Explanation: I/O interfaces enable communication between a computer system and external

devices such as printers, keyboards, and storage devices.

16. Which type of I/O operation typically involves the highest latency?

a) Synchronous I/O
b) Asynchronous I/O
c) Interrupt-driven I/O
d) Program-controlled I/O

Answer: a) Synchronous I/O
Explanation: Synchronous I/O operations often involve higher latency as they block the CPU until the operation is completed.

17. What distinguishes concurrent I/O from parallel I/O?

a) Concurrent I/O involves simultaneous execution of multiple I/O operations, while parallel I/O involves executing multiple I/O operations on different processors.
b) Concurrent I/O is slower than parallel I/O.
c) Concurrent I/O requires special hardware, while parallel I/O does not.
d) Concurrent I/O is only applicable in multi-threaded environments, while parallel I/O can be used in single-threaded environments.

Answer: a) Concurrent I/O involves simultaneous execution of multiple I/O operations, while parallel I/O involves executing multiple I/O operations on different processors.
Explanation: Concurrent I/O involves executing multiple I/O operations simultaneously, while parallel I/O involves executing multiple I/O operations concurrently on different processors or cores.

18. Which type of I/O operation allows for the CPU to continue executing other tasks while waiting for data to be transferred?

a) Blocking I/O
b) Synchronous I/O
c) Asynchronous I/O
d) Interrupt-driven I/O

**Answer: c) Asynchronous I/O

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Explanation: Asynchronous I/O enables the CPU to execute other tasks while waiting for data transfer to complete, thus avoiding blocking.

19. What role do interrupts play in interrupt-driven I/O?

a) They slow down the CPU’s execution speed.
b) They allow the CPU to handle I/O operations asynchronously.
c) They pause the CPU’s current execution to handle external requests.
d) They eliminate the need for I/O operations.

Answer: c) They pause the CPU’s current execution to handle external requests.
Explanation: Interrupts in interrupt-driven I/O pause the CPU’s current execution to handle external requests from devices, improving responsiveness.

20. Which I/O handling technique allows for more efficient resource utilization by overlapping computation with I/O operations?

a) Programme Controlled I/O
b) Interrupt Driven I/O
c) Asynchronous I/O
d) Concurrent I/O

Answer: d) Concurrent I/O
Explanation: Concurrent I/O allows for more efficient resource utilization by overlapping computation with I/O operations, thereby improving overall system performance.

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