- 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 realtime?
- 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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