1. What is the purpose of a constructor in Java?  
Option A: To initialize an object's state  
Option C: To compare two objects  
Option B: To create a new object  
Option D: To destroy an object  
Correct Answer: A  
  
2. Which of the following is a valid data type in C++?  
Option B: integer  
Option A: real  
Option D: boolean  
Option C: string  
Correct Answer: D  
  
3. What is the difference between a stack and a queue?  
Option C: A stack uses Last-In-First-Out (LIFO) order, while a queue uses First-In-First-Out (FIFO) order.  
Option D: A queue uses Last-In-First-Out (LIFO) order, while a stack uses First-In-First-Out (FIFO) order.  
Option B: A stack is a data structure that stores elements in order of their arrival, while a queue stores elements in order of their priority.  
Option A: A queue is a data structure that stores elements in order of their arrival, while a stack stores elements in order of their priority.  
Correct Answer: C  
  
4. What is the difference between == and === in PHP?  
Option A: == checks only the value, while === checks both the value and type  
Option B: === checks only the value, while == checks both the value and type  
Option C: They are the same operator  
Option D: == is used to compare strings, while === is used to compare numbers  
Correct Answer: A  
  
5. What is the purpose of the virtual keyword in Python?  
Option A: To define a method that will be overridden in a child class  
Option C: To define a method that cannot be overridden in a child class  
Option B: To define a method that is only accessible from within the parent class  
Option D: To define a method that is inherited by all subclasses  
Correct Answer: A  
  
6. What is the difference between a pointer and a reference in C++?  
Option C: A pointer stores the address of a variable, while a reference stores the value of a variable  
Option A: A reference stores the address of a variable, while a pointer stores the value of a variable  
Option D: They are the same thing  
Option B: A pointer can be reassigned, while a reference cannot  
Correct Answer: A  
  
7. What is the purpose of the try-catch block in Java?  
Option B: To handle exceptions that may occur during the execution of the code within the block  
Option C: To prevent exceptions from occurring  
Option A: To log exceptions that occur  
Option D: To recover from exceptions  
Correct Answer: B  
  
8. What is the difference between a local variable and a global variable in JavaScript?  
Option B: A local variable is declared within a block of code, while a global variable is declared outside of any block  
Option A: A global variable is declared within a block of code, while a local variable is declared outside of any block  
Option C: A local variable is visible only within the block in which it is declared, while a global variable is visible throughout the entire program  
Option D: A global variable is visible only within the block in which it is declared, while a local variable is visible throughout the entire program  
Correct Answer: C  
  
9. What is the purpose of the async keyword in Python?  
Option C: To define a function that can be executed concurrently with other code  
Option D: To define a function that will be executed on a separate thread  
Option B: To define a function that will be executed only after all other code has finished executing  
Option A: To define a function that cannot be interrupted  
Correct Answer: C  
  
10. What is the difference between a hash table and a binary tree?  
Option A: A hash table is a data structure that stores key-value pairs, while a binary tree is a tree data structure  
Option B: A binary tree is a data structure that stores key-value pairs, while a hash table is a tree data structure  
Option C: A hash table uses an array to store its elements, while a binary tree uses a linked list  
Option D: A binary tree uses an array to store its elements, while a hash table uses a linked list  
Correct Answer: A  
  
11. What is the purpose of the static keyword in C#?  
Option C: To define a method or property that is associated with the class, rather than with an instance of the class  
Option B: To define a method or property that can only be accessed from within the class  
Option A: To define a method or property that is inherited by all subclasses  
Option D: To define a method or property that is not accessible from outside the class  
Correct Answer: C  
  
12. What is the difference between a class and an interface in Java?  
Option A: A class is a blueprint for creating objects, while an interface defines a contract that must be implemented by classes  
Option D: An interface is a blueprint for creating objects, while a class defines a contract that must be implemented by interfaces  
Option B: A class can implement multiple interfaces, while an interface cannot extend multiple classes  
Option C: An interface cannot implement multiple classes, while a class can extend multiple interfaces  
Correct Answer: A  
  
13. What is the purpose of the scope resolution operator (::) in C++?  
Option C: To access a member of a class from outside the class  
Option B: To define a new class  
Option A: To access a static member of a class  
Option D: To create an object of a class  
Correct Answer: C  
  
14. What is the difference between a while loop and a do-while loop in JavaScript?  
Option A: A while loop checks the condition before executing the loop body, while a do-while loop checks the condition after executing the loop body  
Option D: A do-while loop checks the condition before executing the loop body, while a while loop checks the condition after executing the loop body  
Option B: A do-while loop is guaranteed to execute at least once, while a while loop is not  
Option C: A while loop is guaranteed to execute at least once, while a do-while loop is not  
Correct Answer: B  
  
15. What is the purpose of the == operator in Python?  
Option D: To compare the values of two objects  
Option A: To assign a value to a variable  
Option B: To check if two objects are identical  
Option C: To concatenate two strings  
Correct Answer: D  
  
16. What is the difference between a function and a method in JavaScript?  
Option C: A function is a standalone piece of code, while a method is a function that is associated with an object  
Option A: A method is a standalone piece of code, while a function is associated with an object  
Option B: A function can be called from anywhere in the program, while a method can only be called from within the object  
Option D: A method can be called from anywhere in the program, while a function can only be called from within the object  
Correct Answer: C  
  
17. What is the purpose of the super keyword in Python?  
Option B: To call the parent class's constructor  
Option C: To access the parent class's attributes  
Option A: To inherit the parent class's methods  
Option D: To create a new instance of the parent class  
Correct Answer: B  
  
18. What is the difference between a primary key and a foreign key in a database?  
Option C: A primary key is a column that uniquely identifies each row in a table, while a foreign key is a column that references a primary key in another table  
Option A: A foreign key is a column that uniquely identifies each row in a table, while a primary key is a column that references a primary key in another table  
Option D: A primary key can be null, while a foreign key cannot  
Option B: A foreign key can be null, while a primary key cannot  
Correct Answer: C  
  
19. What is the purpose of a join in SQL?  
Option C: To combine rows from two or more tables based on a common column  
Option B: To create a new table  
Option A: To delete rows from a table  
Option D: To update rows in a table  
Correct Answer: C  
  
20. What is the difference between an index and a cluster in MongoDB?  
Option B: An index is a data structure that speeds up the retrieval of documents, while a cluster is a group of MongoDB servers  
Option C: A cluster is a data structure that speeds up the retrieval of documents, while an index is a group of MongoDB servers  
Option A: An index can only be created on a single field, while a cluster can be created on multiple fields  
Option D: A cluster can only be created on a single field, while an index can be created on multiple fields  
Correct Answer: B  
  
21. What is the purpose of a RAID array?  
Option A: To improve performance and reliability by storing data on multiple disks  
Option B: To reduce the cost of storage  
Option C: To increase the capacity of storage  
Option D: To protect data from viruses  
Correct Answer: A  
  
22. What is the difference between a router and a modem?  
Option D: A router connects multiple devices to the internet, while a modem connects a single device to the internet  
Option C: A modem connects multiple devices to the internet, while a router connects a single device to the internet  
Option A: A router is a type of modem  
Option B: A modem is a type of router  
Correct Answer: D  
  
23. What is the purpose of a load balancer?  
Option B: To distribute traffic across multiple