

## SET 4: CS Q&A

**Q1.** What will be the output of the following C code?

- ```
int a = 5;  
printf("%d", a++);
```
- A. 6
  - B. 5
  - C. Compilation Error
  - D. Undefined Behavior

**Correct Answer:** B. 5

**Explanation:**

a++ is the **post-increment operator**, which means the value of a is used first (5), and then incremented. So, printf prints 5.

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**Q2.** Which of the following is not a feature of OOP?

- A. Encapsulation
- B. Inheritance
- C. Compilation
- D. Polymorphism

**Correct Answer:** C. Compilation

**Explanation:**

Compilation is a feature of programming languages in general, not specific to object-oriented programming. OOP features include **Encapsulation, Inheritance, Polymorphism**, and **Abstraction**.

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**Q3.** Which data structure uses **LIFO (Last In, First Out)** principle?

- A. Queue
- B. Stack

- C. Array
- D. Linked List

**Correct Answer:** B. Stack

**Explanation:**

Stack follows the **LIFO** principle — the last element inserted is the first to be removed. Useful in function calls, expression evaluation, etc.

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**Q4.** In SQL, which command is used to remove all records from a table but not the structure?

- A. DROP
- B. DELETE
- C. REMOVE
- D. TRUNCATE

**Correct Answer:** D. TRUNCATE

**Explanation:**

TRUNCATE removes all rows from a table quickly but retains the table structure. DROP removes both data and structure.

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**Q5.** Which of the following tags is used to create a hyperlink in HTML?

- A. <link>
- B. <a>
- C. <href>
- D. <url>

**Correct Answer:** B. <a>

**Explanation:**

The <a> tag is used to define hyperlinks. The href attribute inside <a> defines the URL of the link.

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**Q6.** What is the first phase of the Software Development Life Cycle (SDLC)?

- A. Design
- B. Testing
- C. Requirement Analysis
- D. Coding

**Correct Answer:** C. Requirement Analysis

**Explanation:**

The first step in SDLC is to **gather requirements** from stakeholders to understand what the software must achieve.

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**Q7.** Which of the following is a valid variable name in Python?

- A. 1variable
- B. variable-name
- C. variable\_name
- D. variable name

**Correct Answer:** C. variable\_name

**Explanation:**

Python variable names must not start with digits, must not include hyphens or spaces, and typically use underscores for separation.

---

**Q8.** What does **encapsulation** mean in object-oriented programming?

- A. Hiding data within methods
- B. Binding data and methods that operate on that data
- C. Dividing the program into multiple classes
- D. Writing code in a single function

**Correct Answer:** B. Binding data and methods that operate on that data

**Explanation:**

Encapsulation binds data (attributes) and the code (methods) together and restricts access to some of the object's components.

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**Q9.** What is the worst-case time complexity of linear search?

- A.  $O(\log n)$
- B.  $O(1)$
- C.  $O(n)$
- D.  $O(n^2)$

**Correct Answer:** C.  $O(n)$

**Explanation:**

In the worst case, a linear search may have to check all  $n$  elements — hence the time complexity is  $O(n)$ .

---

**Q10.** What does **normalization** aim to achieve in DBMS?

- A. Speed up SQL queries
- B. Remove duplicate data and improve data integrity
- C. Create visual diagrams
- D. Increase data redundancy

**Correct Answer:** B. Remove duplicate data and improve data integrity

**Explanation:**

Normalization organizes data to **reduce redundancy** and ensure **data integrity**, typically by dividing tables into related parts.

**Q11.** Which keyword is used in Java to inherit a class?

- A. `this`
- B. `import`

- C. extends
- D. implements

**Correct Answer:** C. extends

**Explanation:**

Java uses the extends keyword for **class inheritance**, allowing one class to acquire properties and methods of another.

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**Q12.** What does HTML stand for?

- A. Hyper Transfer Markup Language
- B. Hyper Text Markup Language
- C. High Text Machine Language
- D. Hyper Tabular Markup Language

**Correct Answer:** B. Hyper Text Markup Language

**Explanation:**

HTML stands for **Hyper Text Markup Language**, which is used to create the structure of web pages.

---

**Q13.** Which of the following is NOT a valid SQL command?

- A. SELECT
- B. UPDATE
- C. MODIFY
- D. DELETE

**Correct Answer:** C. MODIFY

**Explanation:**

MODIFY is not a valid SQL command. SQL uses ALTER to change table structure.

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**Q14.** What is the result of the following Python expression?

`3 * 1 ** 3`

- A. 9
- B. 3
- C. 1
- D. 27

**Correct Answer:** B. 3

**Explanation:**

The `**` operator has higher precedence than `*`. So,  $1^{**} 3 = 1$ , then  $3 * 1 = 3$ .

---

**Q15.** Which sorting algorithm has the best average-case time complexity?

- A. Bubble Sort
- B. Selection Sort
- C. Quick Sort
- D. Insertion Sort

**Correct Answer:** C. Quick Sort

**Explanation:**

Quick Sort has an average-case time complexity of  $O(n \log n)$ , which is better than the others listed.

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**Q16.** In relational databases, what is a **primary key**?

- A. A column that stores images
- B. A key that refers to another table
- C. A unique identifier for each row
- D. A column with only null values

**Correct Answer:** C. A unique identifier for each row

**Explanation:**

A primary key ensures that each record in a table is **unique and non-null**.

---

**Q17.** In JavaScript, what is the output of typeof null?

- A. "null"
- B. "object"
- C. "undefined"
- D. "boolean"

**Correct Answer:** B. "object"

**Explanation:**

This is a well-known **quirk in JavaScript** — typeof null returns "object" due to a historical bug in the language.

---

**Q18.** What does the term "polymorphism" mean in programming?

- A. Multiple variables with the same name
- B. One function behaving differently in different contexts
- C. Writing many programs in one file
- D. Overriding variable types

**Correct Answer:** B. One function behaving differently in different contexts

**Explanation:**

Polymorphism allows methods to behave differently based on object context — **method overloading and overriding** are examples.

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**Q19.** Which HTTP method is used to update existing data?

- A. GET
- B. POST

- C. PUT
- D. DELETE

**Correct Answer:** C. PUT

**Explanation:**

In RESTful services, PUT is used to **update or replace** an existing resource, while POST is used to create.

---

**Q20.** Which model of SDLC is best suited when requirements are well understood?

- A. Spiral Model
- B. Agile Model
- C. V-Model
- D. Waterfall Model

**Correct Answer:** D. Waterfall Model

**Explanation:**

Waterfall is best for **well-defined, static requirements**. It is a linear model with clearly defined stages.

**Q21.** Which operator is used to allocate memory dynamically in C++?

- A. malloc
- B. alloc
- C. new
- D. create

**Correct Answer:** C. new

**Explanation:**

In C++, new is used for dynamic memory allocation, unlike C where malloc is used.

---

**Q22.** In HTML, which attribute is used to open a link in a new tab?

- A. open="new"
- B. window="new"
- C. target="\_blank"
- D. link="\_new"

**Correct Answer:** C. target="\_blank"

**Explanation:**

Using target="\_blank" in an <a> tag tells the browser to open the link in a **new tab or window**.

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**Q23.** Which of the following data structures is used in Breadth-First Search (BFS) of a graph?

- A. Stack
- B. Array
- C. Queue
- D. Linked List

**Correct Answer:** C. Queue

**Explanation:**

BFS uses a **queue** to explore nodes level-by-level in a graph.

---

**Q24.** What will be the output of the following code?

```
print(bool(0), bool(3.14), bool(""))
```

- A. False True True
- B. False True False
- C. True True False
- D. False False False

**Correct Answer:** B. False True False

**Explanation:**

bool(0) and bool("") are False, while bool(3.14) is True. Non-zero numbers and non-empty strings are **True** in Python.

---

**Q25.** Which SQL clause is used to filter rows based on a condition?

- A. WHERE
- B. SELECT
- C. ORDER BY
- D. GROUP BY

**Correct Answer:** A. WHERE

**Explanation:**

The WHERE clause filters rows that meet a certain **condition** in an SQL query.

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**Q26.** Which of the following is an example of a **front-end** framework?

- A. Django
- B. Flask
- C. React
- D. Node.js

**Correct Answer:** C. React

**Explanation:**

React is a **JavaScript library** for building user interfaces, mainly used in the **front end**.

---

**Q27.** In Java, what is the size of an int?

- A. 2 bytes
- B. 4 bytes

- C. 8 bytes
- D. Depends on the system

**Correct Answer:** B. 4 bytes

**Explanation:**

In Java, the size of int is always **4 bytes (32 bits)** regardless of the system.

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**Q28.** What is the main purpose of a constructor in OOP?

- A. Free memory
- B. Return object
- C. Initialize object
- D. Destroy object

**Correct Answer:** C. Initialize object

**Explanation:**

A **constructor** is a special method used to **initialize an object** when it is created.

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**Q29.** What is the space complexity of an algorithm?

- A. Total variables in a program
- B. Amount of memory used relative to input size
- C. Number of processors needed
- D. Disk usage

**Correct Answer:** B. Amount of memory used relative to input size

**Explanation:**

Space complexity measures the **amount of memory** an algorithm needs in relation to input size.

---

**Q30.** Which of the following models emphasizes **incremental delivery** of software?

- A. Waterfall
- B. Big Bang
- C. Spiral
- D. Agile

**Correct Answer:** D. Agile

**Explanation:**

Agile model focuses on **iterative and incremental development**, delivering parts of the software frequently.

**Q31.** In C programming, which of the following is a **loop control structure**?

- A. if
- B. while
- C. switch
- D. goto

**✓ Correct Answer:** B. while



**Explanation:**

while is a loop control structure. if and switch are decision-making statements, goto is an unconditional jump.

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**Q32.** Which of the following languages is primarily used for **server-side scripting**?

- A. JavaScript
- B. HTML
- C. PHP
- D. CSS

**Correct Answer:** C. PHP

**Explanation:**

PHP is widely used for **server-side scripting** to generate dynamic content on the web.

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**Q33.** In a stack, what does the pop() operation do?

- A. Inserts an element at the top
- B. Deletes an element at the top
- C. Deletes an element at the bottom
- D. Searches for an element

**Correct Answer:** B. Deletes an element at the top

**Explanation:**

In stack, pop() **removes the topmost** element, following the LIFO principle.

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**Q34.** Which keyword in SQL is used to **combine rows** from two or more tables?

- A. COMBINE
- B. UNION
- C. JOIN
- D. MERGE

**Correct Answer:** C. JOIN

**Explanation:**

JOIN is used to **retrieve related data** from multiple tables based on matching columns.

---

**Q35.** Which of the following tags is used for inserting an image in HTML?

- A. <image>
- B. <img>
- C. <src>
- D. <pic>

**Correct Answer:** B. <img>

**Explanation:**

The <img> tag is used to embed images in HTML documents. It requires a src attribute.

---

**Q36.** What is the purpose of git commit in version control?

- A. Saves changes to GitHub directly
- B. Stages files for commit
- C. Records changes to the local repository
- D. Deletes the local repository

**Correct Answer:** C. Records changes to the local repository

**Explanation:**

git commit saves your staged changes to the **local Git repository**.

---

**Q37.** What is the time complexity of binary search in the worst case?

- A. O(1)
- B. O(n)
- C. O(log n)
- D. O(n log n)

**Correct Answer:** C. O(log n)

**Explanation:**

Binary search divides the array in half each time, leading to a **logarithmic time complexity**.

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**Q38.** Which operator is used to access members of a class through a pointer in C++?

- A. . (dot)
- B. -> (arrow)
- C. :: (scope resolution)
- D. \* (asterisk)

**Correct Answer:** B. -> (arrow)

**Explanation:**

The -> operator is used to access members of a class or struct through a **pointer** in C++.

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**Q39.** Which of these sorting algorithms is **not** comparison-based?

- A. Merge Sort
- B. Quick Sort
- C. Radix Sort
- D. Heap Sort

**Correct Answer:** C. Radix Sort

**Explanation:**

Radix Sort is a **non-comparison-based** algorithm. It sorts numbers by processing individual digits.

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**Q40.** What is the role of a foreign key in relational databases?

- A. It uniquely identifies each record
- B. It links two tables together
- C. It stores binary data
- D. It updates the primary key

**Correct Answer:** B. It links two tables together

**Explanation:**

A **foreign key** is a field that creates a relationship between two tables by referring to the **primary key** of another table.

**Q41.** Which of the following HTTP status codes indicates a successful request?

- A. 200
- B. 301
- C. 404
- D. 500

**Correct Answer:** A. 200

**Explanation:**

HTTP status code 200 OK indicates that the request has succeeded. 404 is Not Found, 301 is Moved Permanently, 500 is Server Error.

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**Q42.** Which method is automatically called when an object is created in a class?

- A. start()
- B. constructor
- C. init()
- D. static()

**Correct Answer:** B. constructor

**Explanation:**

A **constructor** is automatically called when an object is created to initialize its data members.

---

**Q43.** Which of the following data structures gives the **best performance** for implementing a priority queue?

- A. Stack
- B. Array
- C. Heap
- D. Queue

**Correct Answer:** C. Heap

**Explanation:**

A **heap** data structure is used to implement **priority queues** efficiently in logarithmic time.

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**Q44.** What is the full form of CSS in web development?

- A. Computer Style Sheets
- B. Cascading Style Sheets
- C. Creative Style Sheets
- D. Colorful Style Sheets

**Correct Answer:** B. Cascading Style Sheets

**Explanation:**

**CSS** stands for **Cascading Style Sheets**, used to control the look and layout of web pages.

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**Q45.** Which function is used to find the length of a string in C?

- A. `strlen()`
- B. `length()`
- C. `strlength()`
- D. `size()`

**Correct Answer:** A. `strlen()`

**Explanation:**

The C standard library provides `strlen()` to calculate the **length of a string**, excluding the null character.

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**Q46.** What type of relationship does a **foreign key** create in relational databases?

- A. One-to-One
- B. One-to-Many or Many-to-One
- C. Many-to-Many only
- D. Circular

**Correct Answer:** B. One-to-Many or Many-to-One

**Explanation:**

A foreign key typically establishes a **One-to-Many or Many-to-One** relationship between two tables.

---

**Q47.** What will be the result of `5 == '5'` in JavaScript?

- A. true
- B. false
- C. error
- D. undefined

**Correct Answer:** A. true

**Explanation:**

In JavaScript, `==` performs **type coercion**, so `5 == '5'` is true. Use `===` for strict comparison.

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**Q48.** Which principle of OOP promotes code reusability?

- A. Polymorphism
- B. Inheritance
- C. Encapsulation
- D. Abstraction

**Correct Answer:** B. Inheritance

**Explanation:**

Inheritance allows a class to use the properties and methods of another class, promoting **code reuse**.

---

**Q49.** Which loop is guaranteed to execute at least once?

- A. for
- B. while
- C. do-while
- D. None of the above

**Correct Answer:** C. do-while

**Explanation:**

The **do-while** loop executes the block **first**, then checks the condition, ensuring **at least one execution**.

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**Q50.** Which phase in SDLC focuses on translating requirements into system design?

- A. Requirement Analysis
- B. Testing
- C. Implementation
- D. Design

**Correct Answer:** D. Design

**Explanation:**

The **Design phase** converts functional requirements into a blueprint for development, including architecture, data models, and interface design.

**Q51.** Which of the following is **not** a primitive data type in Java?

- A. int
- B. float
- C. boolean
- D. String

**Correct Answer:** D. String

**Explanation:**

String is **not** a primitive data type in Java; it's an **object** of the String class. Others like int, float, and boolean are primitives.

---

**Q52.** Which function is used to insert an element at the end of an array in JavaScript?

- A. push()
- B. append()
- C. add()
- D. insert()

**Correct Answer:** A. push()

**Explanation:**

The push() method adds one or more elements to the **end** of an array in JavaScript.

---

**Q53.** Which data structure is best suited for implementing **recursion**?

- A. Queue
- B. Tree
- C. Stack
- D. Graph

**Correct Answer:** C. Stack

**Explanation:**

**Stack** is used by the system to store function calls during recursion, making it ideal for implementing recursive algorithms.

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**Q54.** Which SQL keyword is used to retrieve **unique** values?

- A. UNIQUE
- B. ONLY
- C. DISTINCT
- D. FIRST

**Correct Answer:** C. DISTINCT

**Explanation:**

The DISTINCT keyword in SQL removes **duplicate** records and returns **unique** values in the result set.

---

**Q55.** What is the purpose of package.json in a Node.js project?

- A. To store user settings
- B. To define dependencies and metadata
- C. To list database queries
- D. To save HTML files

**Correct Answer:** B. To define dependencies and metadata

**Explanation:**

package.json holds details like project name, version, scripts, and dependencies used in a **Node.js** application.

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**Q56.** Which C++ concept allows defining **multiple functions with the same name but different parameters**?

- A. Inheritance
- B. Encapsulation
- C. Function Overloading
- D. Operator Overloading

**Correct Answer:** C. Function Overloading

**Explanation:**

**Function overloading** allows multiple functions with the same name but different signatures within the same scope.

---

**Q57.** What will be the output of `len("Hello\nWorld")` in Python?

- A. 10
- B. 11
- C. 9
- D. 12

**Correct Answer:** B. 11

**Explanation:**

\n is **one character**. The string "Hello\nWorld" has 11 characters (5 + 1 + 5).

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**Q58.** Which keyword is used in Python to handle exceptions?

- A. raise
- B. try
- C. handle
- D. catch

**Correct Answer:** B. try

**Explanation:**

Python uses try and except blocks to handle exceptions. raise is used to **throw** an exception.

---

**Q59.** In relational databases, which constraint **ensures all values in a column are unique**?

- A. DEFAULT
- B. UNIQUE

C. PRIMARY KEY

D. FOREIGN KEY

**Correct Answer:** B. UNIQUE

**Explanation:**

The UNIQUE constraint ensures that all values in a column are **different**, but unlike primary key, it allows NULL.

---

**Q60.** In Agile methodology, a short period of development is called a:

A. Sprint

B. Cycle

C. Loop

D. Chunk

**Correct Answer:** A. Sprint

**Explanation:**

In Agile, a **sprint** is a **time-boxed** development cycle (usually 1–4 weeks) to deliver a functional part of the product.

**Q61.** Which C data type is most suitable for storing a **single character**?

A. int

B. float

C. char

D. string

**Correct Answer:** C. char

**Explanation:**

The char data type in C is used to store a **single character**, occupying 1 byte of memory.

---

**Q62.** What will be the output of the following JavaScript code?

```
console.log(typeof NaN);
```

- A. "NaN"
- B. "undefined"
- C. "number"
- D. "object"

**Correct Answer:** C. "number"

**Explanation:**

In JavaScript, NaN (Not a Number) is paradoxically of type "**number**".

---

**Q63.** Which traversal method visits **left subtree → root → right subtree** in binary trees?

- A. In-order
- B. Pre-order
- C. Post-order
- D. Level-order

**Correct Answer:** A. In-order

**Explanation:**

**In-order traversal** visits nodes in the order: **Left → Root → Right**, often used to retrieve values in sorted order.

---

**Q64.** Which command is used to **create a new table** in SQL?

- A. MAKE TABLE
- B. CREATE TABLE
- C. NEW TABLE
- D. ADD TABLE

**Correct Answer:** B. CREATE TABLE

**Explanation:**

The CREATE TABLE command is used in SQL to define a new table and its columns.

---

**Q65.** In HTML, which attribute specifies an **alternate text** for an image?

- A. src
- B. title
- C. alt
- D. name

**Correct Answer:** C. alt

**Explanation:**

The alt attribute provides **alternative text** if the image cannot be displayed, and it's also important for accessibility.

---

**Q66.** In Python, what does the range(5) function return?

- A. A list from 1 to 5
- B. A list from 0 to 5
- C. A sequence from 0 to 4
- D. An error

**Correct Answer:** C. A sequence from 0 to 4

**Explanation:**

range(5) generates numbers starting from 0 up to (but not including) 5: **[0, 1, 2, 3, 4]**.

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**Q67.** Which of the following is **not** a valid HTTP method?

- A. PUT
- B. POST

- C. FETCH
- D. DELETE

**Correct Answer:** C. FETCH

**Explanation:**

FETCH is not an HTTP method. Valid methods include GET, POST, PUT, PATCH, DELETE, etc.

---

**Q68.** What is the output of this C code?

```
printf("%d", sizeof(int));
```

- A. 2
- B. 4
- C. Depends on system
- D. Error

**Correct Answer:** C. Depends on system

**Explanation:**

The size of int can vary between systems (usually **4 bytes** on modern systems), so the correct answer is **platform-dependent**.

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**Q69.** What kind of language is SQL?

- A. Procedural
- B. Functional
- C. Declarative
- D. Object-Oriented

**Correct Answer:** C. Declarative

**Explanation:**

SQL is a **declarative language** — you state **what** you want, not **how** to do it.

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**Q70.** In software engineering, what does **DRY** stand for?

- A.** Do Run Yourself
- B.** Don't Repeat Yourself
- C.** Debug Regular Yields
- D.** Deploy Regularly Yearly

**Correct Answer:** B. Don't Repeat Yourself

**Explanation:**

**DRY** is a principle that promotes **reusability** and **modularity** by avoiding duplication of code.

**Q71.** What is the default return type of a function in C if not specified?

- A.** void
- B.** float
- C.** int
- D.** char

**Correct Answer:** C. int

**Explanation:**

In C, if a return type is not explicitly defined, the default return type of the function is **int**.

---

**Q72.** Which keyword is used to define a class in Python?

- A.** def
- B.** function
- C.** class
- D.** struct

**Correct Answer:** C. class

**Explanation:**

In Python, the `class` keyword is used to define a class.

---

**Q73.** Which of the following sorting algorithms has the best average-case time complexity?

- A. Bubble Sort
- B. Insertion Sort
- C. Quick Sort
- D. Selection Sort

**Correct Answer:** C. Quick Sort

**Explanation:**

**Quick Sort** has an average-case time complexity of  $O(n \log n)$ , which is better than Bubble, Insertion, and Selection sorts.

---

**Q74.** Which command is used to remove a table from a SQL database?

- A. REMOVE TABLE
- B. DELETE TABLE
- C. DROP TABLE
- D. ERASE TABLE

**Correct Answer:** C. DROP TABLE

**Explanation:**

`DROP TABLE` permanently deletes the table and its data from the database.

---

**Q75.** What is the result of the following expression in JavaScript?

"5" + 3

- A. 8
- B. "53"
- C. Error
- D. NaN

**Correct Answer:** B. "53"

**Explanation:**

In JavaScript, + performs **string concatenation** if any operand is a string. So "5" + 3 becomes "53".

---

**Q76.** Which protocol is commonly used for **secure communication** over the web?

- A. FTP
- B. HTTP
- C. HTTPS
- D. SMTP

**Correct Answer:** C. HTTPS

**Explanation:**

**HTTPS** (HTTP Secure) uses SSL/TLS for **encrypted and secure communication** between web browsers and servers.

---

**Q77.** What will be the value of x after executing this C code?

```
int x = 5;  
x += 3;
```

- A. 3
- B. 5

C. 8

D. 2

**Correct Answer:** C. 8

**Explanation:**

$x += 3$  is shorthand for  $x = x + 3$ , so  $x$  becomes 8.

---

**Q78.** In Python, which keyword is used to inherit from a parent class?

A. inherit

B. super

C. extends

D. class ParentClassName

**Correct Answer:** D. class ParentClassName

**Explanation:**

In Python, inheritance is defined like this: `class Child(Parent):`. There is no special keyword like `extends`.

---

**Q79.** Which type of database relationship represents "many records in one table related to many in another"?

A. One-to-One

B. One-to-Many

C. Many-to-Many

D. Self-Join

**Correct Answer:** C. Many-to-Many

**Explanation:**

A **Many-to-Many** relationship exists when multiple records in one table are related to multiple records in another table (e.g., students and courses).

---

**Q80.** What is the main purpose of using **version control systems** like Git?

- A. To deploy applications
- B. To compile source code
- C. To track changes and collaborate on code
- D. To increase RAM efficiency

**Correct Answer:** C. To track changes and collaborate on code

**Explanation:**

Version control systems like Git are used to **track changes**, manage code versions, and enable collaboration among developers.

**Q81.** Which of the following is **not** a valid loop in C?

- A. for
- B. while
- C. repeat
- D. do-while

**Correct Answer:** C. repeat

**Explanation:**

C does not have a repeat loop. Valid loops in C are for, while, and do-while.

---

**Q82.** Which of these is a correct syntax to define a function in Python?

- A. function myFunc():
- B. def myFunc():
- C. def: myFunc()
- D. function: myFunc()

**Correct Answer:** B. def myFunc():

**Explanation:**

In Python, functions are defined using the def keyword followed by the function name and parentheses.

---

**Q83.** Which data structure uses **LIFO (Last-In, First-Out)** principle?

- A. Queue
- B. Array
- C. Linked List
- D. Stack

**Correct Answer:** D. Stack

**Explanation:**

A **stack** operates on **Last-In, First-Out** principle, meaning the last element inserted is the first to be removed.

---

**Q84.** In SQL, what does the WHERE clause do?

- A. Filters rows based on a condition
- B. Groups the data
- C. Sorts the data
- D. Joins tables

**Correct Answer:** A. Filters rows based on a condition

**Explanation:**

The WHERE clause is used to filter records that meet a specified condition.

---

**Q85.** Which of the following is the **correct HTML5 tag** for a navigation bar?

- A. <nav>
- B. <navigation>
- C. <menu>
- D. <nav-bar>

**Correct Answer:** A. <nav>

**Explanation:**

HTML5 introduced the <nav> tag to define a section of navigation links.

---

**Q86.** What will be the result of this Python expression?

$2^{**} 3$

- A. 6
- B. 8
- C. 9
- D. 23

**Correct Answer:** B. 8

**Explanation:**

The `**` operator in Python is the **exponentiation** operator.  $2^{**} 3$  is 2 raised to the power of 3, which is 8.

---

**Q87.** Which HTTP status code means "Not Found"?

- A. 200
- B. 302
- C. 404
- D. 500

**Correct Answer:** C. 404

**Explanation:**

**404** is the HTTP status code returned when the server cannot find the requested resource.

---

**Q88.** What is the time complexity of accessing an element in an **array** by index?

- A.  $O(n)$
- B.  $O(\log n)$
- C.  $O(1)$
- D.  $O(n^2)$

**Correct Answer:** C.  $O(1)$

**Explanation:**

Arrays allow **direct access** by index in **constant time**, hence  $O(1)$ .

---

**Q89.** In a class, what is the function that gets automatically called when an object is created?

- A. `init()`
- B. `constructor()`
- C. `init()`
- D. `constructor()`

**Correct Answer:** C. `init()`

**Explanation:**

In Python, the special method `__init__()` is the **constructor**, called when an object is instantiated.

---

**Q90.** What is **agile methodology** mainly known for?

- A. Strict documentation
- B. Waterfall approach
- C. Iterative development with customer feedback
- D. One-time project delivery

**Correct Answer:** C. Iterative development with customer feedback

**Explanation:**

Agile focuses on **iterative development, frequent deliveries, and continuous customer involvement** to improve software quality.

**Q91.** Which of the following is a valid **variable name** in most programming languages?

- A. 1value
- B. value#
- C. \_value
- D. @value

**Correct Answer:** C. \_value

**Explanation:**

Variable names cannot start with a number or contain special characters like # or @. \_value is valid and commonly used.

---

**Q92.** Which command is used to **initialize a Git repository**?

- A. git start
- B. git init
- C. git create
- D. git new

**Correct Answer:** B. git init

**Explanation:**

git init initializes a new Git repository in the current directory.

---

**Q93.** Which of the following file extensions is used for **Java source code**?

- A. .js
- B. .java
- C. .py
- D. .cpp

**Correct Answer:** B. .java

**Explanation:**

Java source files use the .java extension.

---

**Q94.** Which of the following best describes **encapsulation** in OOP?

- A. Deriving new classes from existing ones
- B. Hiding internal state and requiring all interaction through methods
- C. Using multiple classes in a program
- D. Creating copies of objects

**Correct Answer:** B. Hiding internal state and requiring all interaction through methods

**Explanation:**

Encapsulation is the process of **restricting direct access** to some of an object's components and only exposing selected information.

---

**Q95.** In SQL, which clause is used to **sort results**?

- A. SORT BY
- B. GROUP BY
- C. ORDER BY
- D. ARRANGE BY

**Correct Answer:** C. ORDER BY

**Explanation:**

ORDER BY is used to **sort query results** in ascending or descending order.

---

**Q96.** Which HTML tag is used to **create a hyperlink**?

- A. <link>
- B. <a>
- C. <href>
- D. <url>

**Correct Answer:** B. <a>

**Explanation:**

The <a> tag (anchor) is used to create hyperlinks in HTML.

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**Q97.** In Python, what does the len() function do?

- A. Counts loops
- B. Returns the length of a sequence
- C. Checks for errors
- D. Finds numeric average

**Correct Answer:** B. Returns the length of a sequence

**Explanation:**

len() is used to **get the number of items** in a sequence like a string, list, or tuple.

---

**Q98.** What does the acronym **SQL** stand for?

- A. Server Query Language
- B. Structured Question Language
- C. Structured Query Language
- D. Sequential Query Language

**Correct Answer:** C. Structured Query Language

**Explanation:**

SQL stands for **Structured Query Language**, used to interact with relational databases.

---

**Q99.** In web development, what does **CSS** stand for?

- A. Computer Style Sheet
- B. Cascading Style Sheet
- C. Central Styling Service
- D. Code Styling System

**Correct Answer:** B. Cascading Style Sheet

**Explanation:**

CSS is used to **style HTML elements** and stands for **Cascading Style Sheets**.

---

**Q100.** Which of the following is **not** a programming language?

- A. Java
- B. Python
- C. HTML
- D. C++

**Correct Answer:** C. HTML

**Explanation:**

HTML is a **markup language**, not a programming language. It is used for structuring web content.

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