Top 60+ TCS NQT Interview Questions and Answers for 2025
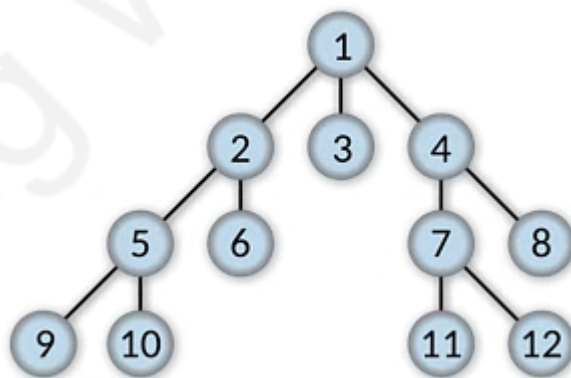
1. What is DFS?

   DFS (Depth-First Search) explores a graph or tree by going as deep as possible along each branch before backtracking, while BFS (Breadth-First Search) explores by visiting all nodes at a given level before moving to the next leve

2. What is BFS?

   Breadth-First Search is an algorithm for searching a tree data structure for a node that satisfies the given property. It starts at the tree root and explores all the tree nodes at the present depth prior, and moves on to the nodes at the following depth level. The extra memory, usually a queue, is needed to keep track of the child nodes encountered but not explored.

3. What is JDK?

The Java Development Kit is a distribution of Java Technology by Oracle Corporation. It implements the Java Language Specification and the Java Virtual Machine Specification that provides the Standard Edition of the Java Application Programming Interface.

4. How to split strings in Java?

```java
public class Simpli {

  public static void main(String args[])

  {

  String str = "Simplielearn";

  String[] arrOfStr = str.split("e", 2);

  for (String a : arrOfStr)

  System.out.println(a);

  }

}
```

5. Explain the swapping of two numbers without using the third variable.

The swapping of two numbers without using the third variable is:

```
int a = 2, b = 4;

a = a + b;

b = a - b;

a = a - b;
```

6. Write a program to check palindromes.

The below is the code used to check the given number palindrome.

```
#include <stdio.h>

int main() {

  int n, number, reversed = 0, remainder;

printf("Enter an integer: ");

scanf("%d", &n);

number = n;

while (n != 0) {

    remainder = n % 10;

    reversed = reversed * 10 + remainder;

    n /= 10;

`
```

```
}

if (number == reversed)

    printf("%d is a palindrome.", number);

else

    printf("%d is not a palindrome.", number);

return 0;
```

7. What is Recursion?

It is a method of solving problems where the solution depends on smaller instances of the same problem. Iteration can generally solve those, but this needs to identify and index the smaller instances at programming time. Recursion solves such recursive problems by using functions that call themselves from within their code.

8. What is a Database?

The database management system is the software that interacts with end-users, applications, and the database to capture and analyze the data. The database software also encompasses the core facilities provided to administer the database. Database and the associated applications can be referred to as a "database system." Often the term "database" is also used to refer to any of the database systems or an application associated with the database.

9. What is JVM?

JVM is a virtual machine that enables the computers to run Java programs as well as the other programs written in other languages that are also compiled to Java bytecode. The JVM is detailed by a specification that formally describes what is required in a JVM implementation. Having a specification ensures interoperability of Java programs across different implementations so that program authors using the Java Development Kit need not worry about idiosyncrasies of the underlying hardware platform.

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10. Explain the use of the join() function in Python.

In Python, join() is used to define a string method that basically returns a string value. It is also concatenated with the elements of an iterable and provides a flexible way to concatenate the strings.

11. Explain the use of the break statement.

Break statement is used to terminate the current loop's execution and transfer control to the outside of the current statement.

12. What is a Tuple?

A tuple is a built-in data collection type of Python. It allows storing values in a sequence manner. It uses () brackets rather than [] square brackets to create a tuple. It is not easy and possible to remove any element but can be found in the tuple.

13. Mention different types of operators in Python.

Different types of operations in python are:

- Arithmetic Operators

- Relational Operators

- Assignment Operators

- Logical Operators

- Membership Operators

- Identity Operators

- Bitwise Operators

14. What is the use of DCL Language?

Data control language allows access and permission management to the database. It is also the subset of a database that decides what part of the database should be accessed by which user. DCL mainly includes two commands, GRANT and REVOKE.

15. Which is more important: money or work?

From a practical point of view, work is more important. Once you achieve and over-perform the target and help increase the company's growth, then definitely money will follow. This is how you must answer the question.

16. Why should we hire you?

As a fresher, I am looking for an opportunity to prove my ability. If I am a part of this company, I'll put all my efforts and strengths to make your company reach great achievements, and if you hire me, I will get an opportunity to build my professional experience through your company. This kind of answer will make a good impression.

17. What is DBMS?

DBMS stands for Database Management System, is a software program that works as an interface between the database and the end-user. DBMS provides the power to manage the data, the database engine, and the database schema is used to facilitate the organization and manipulation of data using a simple query.

18. List some features of JavaScript

The features of JavaScript are:

- Interpreted programming language

- Lightweight

- Complementary to Java

- Open-source

- Cross-platform

- Complementary to HTML

19. Mention use of help() and dir() function in Python.

Help() function: Python's help() function is used to display the documentation string and facilitates the helping operations related to keywords, modules, and attributes.

Dir() function: dir() function in Python is used to display the defined symbols.

20. What is meant by DOM?

DOM basically stands for Document Object Model. It represents the HTML document and can be used to access and change the content of HTML.

21. List a few advantages of Packages in Java.

Few advantages of packages in Python are:

- Packages in Java avoid the name clashes

- Packages in Java also provide easier access control

- It is easy to locate the related classes using packages in Java

22. List a few advantages of DBMS.

The advantages of DBMS are:

- Provides multiple user interfaces

- Redundancy control

- Ensure data consistency

- Restriction for unauthorized access

- Easy accessibility

- Provides backup and recovery

- Enforces integrity constraints

23. Mention various OOPs concepts in C++.

The various types of OOPs concepts in C++ are:

- Class

- Class

- Object

- Data binding

- Inheritance

- Encapsulation

- Abstraction

- Polymorphism

24. What is a clustered index in SQL?

A clustered index is a table where the data for the rows are stored. It also determines the order of the table data based on the key values that are sorted in only one direction.

25. What is the purpose of a default constructor in Java?

The purpose of the default constructor in Java is to assign the default value to the objects. Java compiler in java creates a default constructor implicitly if there is no constructor present in the class.

26. Is it possible to overload the constructors?

The constructors can be overloaded by changing the data type of the parameters or by changing the number of arguments that the constructor accepts.

27. What is the static variable?

Static variable is used to refer to the property of all objects like the name of employees, name of the student, etc. The static variable gets memory allocated only once.

28. Is it possible to execute a program without the main() method?

No, it is not possible for JDK 1.7, but before JDK 1.7 using the static block, it was possible to execute without the main method.

29. What are functions in Python?

A function in Python is a block of code that is executed only when the function is called. To define a function in Python, the def keyword is used.

30. Why do lambda forms in Python do not have the statements?

Lambda forms in Python do not have the statement because it is used to make the new function object and return them in runtime.

31. What is Inheritance?

Inheritance is the mechanism of basing an object or class upon another object (prototype-based inheritance) or class (class-based inheritance), retaining a similar implementation. It is also defined as deriving new classes (subclasses) from existing ones such as superclass or base class and then forming them into a hierarchy of classes. For example, in most class-based object-oriented languages, an object created through inheritance, a "child object," acquires all the properties and behaviors of the "parent object," with the exception of constructors, destructors, overloaded operators, and friend functions of the base class.

32. What are the data types present in JavaScript?

The two types of data types present in JavaScript are:

- Primitive data type
- Non-primitive data type

33. List the types of Data Structures.

Data structures are divided into two types:

- Linear data structures

- Non-linear data structures

34. Which data structure is used to perform recursion?

Stack data structure is used to perform recursion because of its last in first out nature.

35. Mention the operations that can be performed on a stack?

The operations performed on the stack are push, pop, and peek. These are the three operations performed on a stack.

36. What is the queue in a data structure?

A queue is an ordered list that is used to enable insert operations to be performed at one end called REAR and delete operations to be performed at another end called FRONT.

37. Define Polymorphism.

Polymorphism is the provision of a single interface to the entities of different data types or the use of a single symbol to represent multiple types. The concept is borrowed from the principle in biology, where an organism or species can have many forms or stages.

38. What is the correct output of this example: A[4] if A=[1,3,6,7,9,2,4]?

In the above question, the series indexing starts from zero; an element present at the 4th index is 9. So, the output is 9.

39. What is the SQL query to display the current date?

There is a built-in function in SQL to display the current timestamp is called GetDate()

40. Why did you leave your last job?

It is a career move for me. I have learned a lot from my last job, and now I am looking for new challenges to gain a new skill-set.

41. List the types of tree

The list of trees present are:

1. Binary Tree

2. Binary Search Tree

3. General Tree

4. Forests

5. Expression Tree

6. Tournament Tree

42. How would you rate yourself on a scale of 1 to 5?

I will rate myself above 4 out of 5 because I am very confident about myself, as per character and professional skills. So I am very happy to rate 4 out of 5.

43. What are the uses of the super keyword?

The uses of the super keyword are:

1. It is used to invoke the immediate parent class method

2. It is also used to refer to the immediate parent class instance variable

3. The super keyword is also used to invoke immediate parent class constructor

44. What is a constraint?

The constraint is used to specify the rule and regulations that allows and restricts what values or what data will be stored in the table. It also ensures data accuracy and integrity inside the table.

45. What is the structure?

The structure is a user-defined data type that allows storing multiple types of data into a single unit.

46. Mention SQL Commands.

The SQL commands are single-line and multi-line.

47. What is meant by method overloading?

Method overloading is the technique of polymorphism that allows creating multiple methods with the same name but with different signatures.

48. What are the different types of indexes available in SQL?

The different types of indexes available in SQL are:

1. Clustered Index

2. Non-Clustered Index

3. Unique Index

4. Composite Index

5. Bit-Map Index

6. Normal Index

7. B-Tree Index

8. Function-Based Index

49. Explain docstring in Python.

docstring is a string literal that occurs as the first statement in function, class, module, or method definition. It also provides a better way to associate the documentation.

50. Is it possible to override the private methods?

It is not possible to override the private methods because the scope of private methods is limited to the class, and it is not possible to access them outside of the class.

51. Name the pillars of Object-Oriented Programming. Is C++ an Object-Oriented programming language? Is C++ a purely object-oriented programming language?

Four pillars of object-oriented programming they are:

1. Abstraction: exposing only relevant data to the user while hiding unnecessary details.

2. Encapsulation: bundling data and methods that operate on that data within a single unit or object.

3. Inheritance: the process by which a new class can be derived from an existing class, inheriting its attributes and behaviors.

4. Polymorphism: the ability of a single interface to support multiple underlying forms.

C++ is a programming language that supports object-oriented programming but is not purely object-oriented. C++ also supports procedural programming and generic programming.

52. Write a program to perform Binary Search on an array.

Here is a simple C++ program that performs a binary search on an array:

```cpp
#include <iostream>
#include <algorithm>

using namespace std;

int binarySearch(int array[], int size, int x)
{
    int left = 0;
    int right = size - 1;

    while (left <= right)
    {
        int mid = left + (right - left) / 2;

        if (array[mid] == x)
            return mid;

        if (array[mid] < x)
            left = mid + 1;

        else
            right = mid - 1;
    }

    return -1;
}

int main()
{
    int array[] = {1, 2, 3, 4, 5, 6, 7, 8, 9};
    int size = sizeof(array) / sizeof(array[0]);
    int x = 5;

    int result = binarySearch(array, size, x);

    if (result == -1)
        cout << "Element is not present in the array." << endl;
```

```
else
    cout << "Element is present at index " << result << endl;

return 0;
}
```

53. Write a program to find whether a number is even or odd. You are not allowed to use any arithmetic operator i.e. plus (+), minus (-), multiply (*), divide(/), and modulus (%) are not allowed.

Here is a C++ program that determines whether a number is even or odd without using any arithmetic operators:

```cpp
#include <iostream>

using namespace std;

bool isEven(int n)
{
    return (n & 1) == 0;
}

int main()
{
    int n;

    cout << "Enter a number: ";
    cin >> n;

    if (isEven(n))
        cout << n << " is even." << endl;
    else
        cout << n << " is odd." << endl;

    return 0;
}
```

This program defines a function isEven() that takes in an integer n and returns true if n is even and false if n is odd. It does this by using the bitwise AND operator (&) to test the least significant bit of n. If the least significant bit is 0, then n is even. Otherwise, n is odd.

The main() function reads in a number from the user and calls the isEven() function to determine whether the number is even or odd. It then prints the result to the console.

54. What is fragmentation? What does Linked List have to do with it?

In computer science, fragmentation refers to the state of a memory allocation system in which many small blocks of memory are scattered throughout the memory space, making it challenging

to allocate large blocks of memory when needed.

Linked lists can be used to manage memory dynamically, which can help to reduce fragmentation. In a linked list, memory blocks are linked together in a linear structure rather than scattered throughout the memory space.

55. List some linear and some non-linear data structures

Some common linear data structures include:

- Arrays

- Linked Lists

- Stacks

- Queues

- Strings

Some common non-linear data structures include:

- Trees

- Graphs

- Maps/Dictionaries

- Sets

- Hash tables

56. List some major roles performed by an Operating System

- Resource management: managing the allocation and usage of hardware and software resources such as memory, CPU time, and input/output devices.

- Memory management: managing the allocation and deallocation of memory to different programs and processes, as well as handling virtual memory and swapping.

- Process management: creating, scheduling, and terminating processes and controlling the flow of execution of different processes.

57. List some comparisons and similarities between the Java and C++ programming languages.

Some comparisons and similarities between the Java and C++ programming languages include:

1. Java and C++ are high-level programming languages, meaning they are easy for humans to read and write but require additional processing to be executed by a computer.

2. Both languages support object-oriented programming, meaning they allow the creation and manipulation of objects with specific characteristics and behaviors.

3. Both languages support exception handling, allowing for the detection and handling of runtime errors.

4. Both languages support polymorphism, meaning they allow different methods or functions to be defined with the same name but different behaviors depending on the context.

58. Difference between Process and Thread

A process is an instance of a program executed on a computer, and it is a self-contained execution environment with memory space, code, and resources.

A thread is a unit of execution within a process, and it is a separate execution path that shares the same memory space and resources as the parent process.

59. Difference between user-level thread and kernel-level thread

A user-level thread is a thread that is implemented and managed entirely within user space without the involvement of the operating system or kernel. These threads are created and managed by a user-level thread library. They are typically used to improve the performance of a program by allowing multiple tasks to be executed concurrently.

A kernel-level thread is a thread that is implemented and managed by the operating system or kernel. These threads are created and managed by the kernel and are typically used to improve the operating system's performance by allowing multiple tasks to be executed concurrently.

60. What is the relation between the pages and frames in the OS?

The relation between pages and frames is that pages are stored in frames to be accessed by the CPU. When a program or process needs to access a particular memory page, the operating system looks for an available frame to store the page in. If no frame is open, the operating system may use paging to temporarily store the page on disk and free up a frame for use.

61. What is TCP/IP Protocol?

TCP/IP (Transmission Control Protocol/Internet Protocol) is a set of networking protocols that transmit data over the internet and other networks. It is the primary protocol used to connect devices on the internet and is responsible for routing data packets between devices and ensuring the reliable delivery of data.

62. Write an SQL Query to select all those entries from the table STUDENTS, whose name is "Rahul."

SELECT * FROM STUDENTS WHERE name = 'Rahul';

63. Write a program to print the right-angled triangle pattern as shown below for any value of N input by the user.

1. Here is a program in C++ that will print a right-angled triangle pattern for any value of N input by the user:

```
#include <iostream> using namespace std;int main() { int n; cout << "Enter the value of N: "; cin >
```