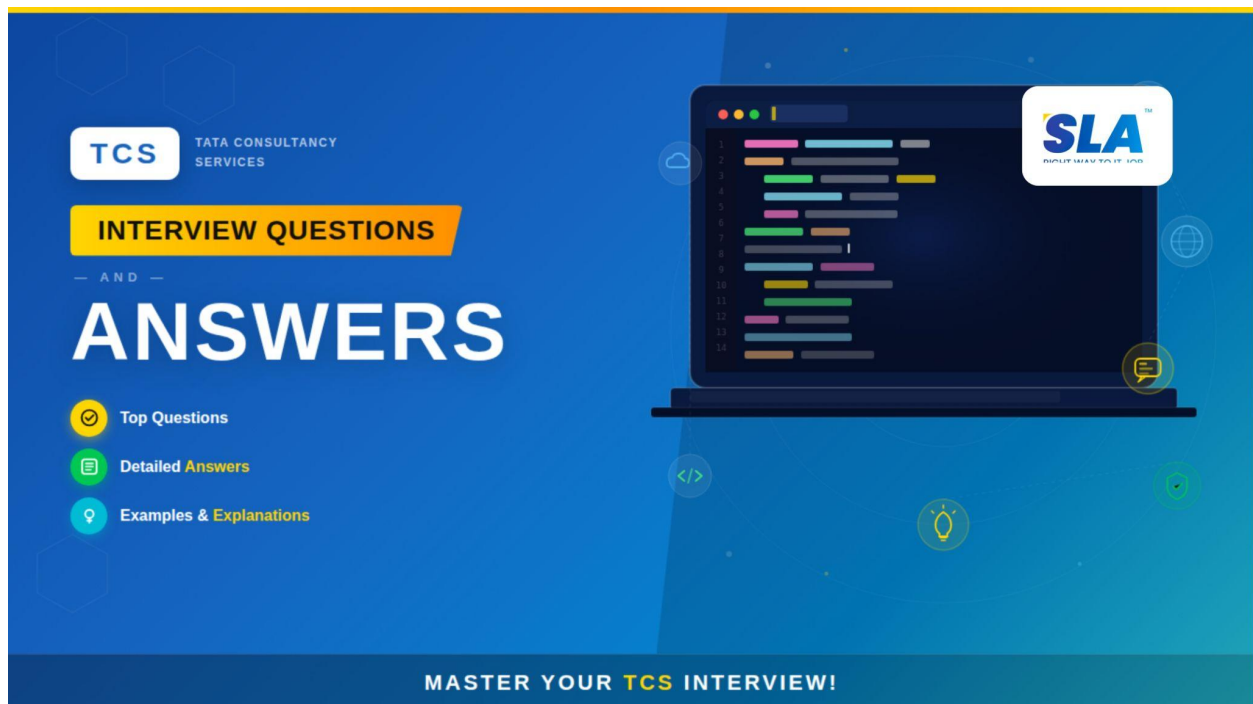




TCS Interview Questions and Answers

Introduction

Most candidates prepare for TCS by collecting question lists. Few pause to understand what the interview panel actually checks. The discussion usually starts with basics, then slowly shifts to depth. A simple question on arrays can turn into time complexity analysis. A database query can lead to normalization logic.

The interview is rarely about difficult theory. It is about clarity. When fundamentals are strong, follow up questions become easier to handle. When answers sound memorized, the panel tends to explore further.

This guide focuses on commonly discussed technical areas in TCS interviews. Each concept is explained in a practical way so readers can build real understanding and respond with confidence during the actual discussion.

TCS Interview Process for Freshers

Most freshers face three main stages. The flow is simple. The pressure is real.

- **Online test:** The first step is a computer based exam. It covers aptitude, reasoning, and verbal ability. For technical roles, coding is included. Questions test basic logic. Arrays, loops, conditions, and simple problem solving appear often. Time runs fast. Practice helps more than theory.
- **Technical round:** This is usually a one to one discussion. Interviewers ask about subjects studied in college. OOPS, DBMS, operating systems, and networking come up frequently. Projects are discussed in detail. Candidates should explain what they built, why they chose certain tools, and how issues were fixed. Clear explanation matters more than complicated answers.
- **HR discussion:** This round focuses on attitude and clarity. Questions relate to teamwork, relocation, career plans, and work flexibility. Honest and direct answers create a better impression than memorized lines.

Strong basics, regular coding practice, and confidence during explanation make a real difference in this process.

TCS Eligibility Criteria for Students and Freshers

Getting ready for a drive at TCS starts with one simple step. Check whether the profile matches what they expect. Many candidates skip this and realise it too late.

- **Degree requirement:** Engineering, computer science, IT, and related streams are usually preferred for technical roles. Other degrees may be considered for specific positions, depending on the hiring notice.
- **Academic record:** A consistent academic track matters. Companies often look at 10th, 12th, and graduation scores together. Extremely low marks or multiple gaps can affect shortlisting.
- **Backlogs:** Open arrears at the time of application are generally not allowed. Cleared backlogs may be accepted within a limited number, based on the recruitment drive.
- **Year of passing:** Campus hiring focuses on the current graduating batch. Off-campus drives may mention a specific pass-out range. Reading the notification carefully avoids confusion.
- **Skill readiness:** Basic programming knowledge, understanding of core subjects, and at least one small project make a difference. Practical exposure speaks louder than theoretical familiarity.

Eligibility may vary slightly by role. Reviewing the official criteria before applying saves time and helps plan preparation realistically.

List of TCS Interview Questions for Freshers

1. State the differences between Java and C languages.
2. Define static variable.
3. Explain objects and classes.
4. What are the various methods for avoiding deadlocks?
5. Explain cache memory.
6. Explain the distinction between a foreign key and a main key.

7. Distinguish between a session and a socket?
8. What is the difference between a void pointer and a null pointer?
9. What is the difference between outer join and inner join?
10. What are the different types of inheritance?

TCS Technical Interview Questions and Answers for Freshers

1. State the differences between Java and C languages.

Java is an object-oriented language that emphasizes objects and classes, whereas C uses a procedural programming approach that emphasizes functions.

Java code is platform-independent due to its "Write Once, Run Anywhere" philosophy, while C code is platform-dependent and needs to be recompiled for every platform.

2. Define static variable.

A static variable in programming is one that is allocated "statically," meaning that it will remain in effect for the duration of the program. It has a persistent value that is declared using the 'static' keyword throughout function calls.

3. Explain objects and classes.

A valid range of values and a default value are among the object attributes that are defined by a class. Object behavior is also described in a class.

An “instance” or member of a class is called an object. There is a state for an object when all of its properties have values that are either defined by default settings or that you expressly define.

4. What are the various methods for avoiding deadlocks?

By removing one or more of the prerequisites for the generation of deadlocks, strategies including resource allocation denial, resource ordering, hold and wait prevention, preemptive resource allocation, and spooling/I/O scheduling help to avoid deadlocks.

5. Explain cache memory.

Cache memory is an additional memory system that allows a computer’s central processing unit (CPU) to handle data and instructions more quickly by temporarily storing them there. The cache is an addition to a computer’s primary memory that improves it.

**Take your Knowledge
Test Report**

Check your Score



6. Explain the distinction between a foreign key and a main key.

- Every row in a table is uniquely identified by its primary key.
- By referring to the primary key of another database, a foreign key creates a relationship between tables.

7. Distinguish between a session and a socket?

A socket is created by combining a port number and an IP address (in pairs).

The session acts as a logical connection between the source and the destination.

8. What is the difference between a void pointer and a null pointer?

The void pointer is a generic pointer that points to the other variable of any data type, while the null pointer leads towards the null value of any data type. Any pointer can be changed to a void pointer.

9. What is the difference between outer join and inner join?

SQL joins are useful for retrieving data from the intersection of two tables.

- The data from the intersection of two tables is provided via an inner join.
- The outer join retrieves the data from the union of two tables.
- The left outer join and the right outer join are the two types of outer joins.

10. What are the different types of inheritance?

Single inheritance, multiple inheritance, multi-level inheritance, hierarchical inheritance, and hybrid inheritance are the five forms of inheritance.

List of TCS Interview Questions for Experienced

11. Assign the 1s and 0s in an array to groups so that you may scan the array in a single scan. Make the boundary conditions as optimal as possible.

12. Explain dependency injection.

13. Explain “pass by value” and “pass by reference.”

14. To combine two sorted arrays into a single sorted array, write a function.
15. Create a function that will produce an alphanumeric string at random with a certain length.
16. To predict the output variable from a single input feature, apply the linear regression technique.
17. Describe the ACID properties of database transactions.
18. Describe the concept of regularization in machine learning.
19. How do you optimize website performance and improve loading times?
20. How can variables from one class get passed down to any other class?

TCS Technical Interview Questions and Answers for Experienced

11. Assign the 1s and 0s in an array to groups so that you may scan the array in a single scan. Make the boundary conditions as optimal as possible.

```
#include<stdio.h>
```

```
#include<conio.h>
```

```
void main()
```

```
{
```

```

int A[10]={0,1,0,1,0,0,0,1,0,1,0,0};

int x=0,y=A.length-1;

while(x

x++;

else if(A[y])

y--;

if(A[x] && !A[y])//here we are checking that stating index is having 1 and last
index having 0 than swap values

A[x]=0,A[y]=1;

}

getch();

}

```

12. Explain dependency injection.

A design pattern and method for achieving loose coupling between classes and their dependencies is called dependency injection. Instead of having a class generate or handle dependencies directly, it entails injecting dependencies into the class.

Dependency injection improves the testability, flexibility, and maintainability of programming. It is easier to replace or modify dependencies without affecting the class itself when the construction of dependencies is isolated from the class that uses them.

This allows mock objects to be injected, which improves unit testing capabilities and encourages code reuse. It also makes modular and extendable architecture easier.

13. Explain “pass by value” and “pass by reference.”

Pass-by-reference: When a method is called, the caller and the method arguments both refer to the same memory variable.

Pass-by-value: Upon calling a method, the caller supplies the method with a duplicate of the parameter variables, resulting in the memory allocation of two values.

14. To combine two sorted arrays into a single sorted array, write a function.

```
def merge_sorted_arrays(arr1, arr2):
```

```
    merged = []
```

```
    i = 0
```

```
    j = 0
```

```
    while i < len(arr1) and j < len(arr2):
```

```
        if arr1[i] <= arr2[j]:
```

```
        merged.append(arr1[i])

        i += 1

    else:

        merged.append(arr2[j])

        j += 1

while i < len(arr1):

    merged.append(arr1[i])

    i += 1

while j < len(arr2):

    merged.append(arr2[j])

    j += 1

return(merged)

arr1 = [1, 3, 5, 7]

arr2 = [2, 4, 6, 8]

merged = merge_sorted_arrays(arr1, arr2)

print(merged)
```

Output:

1

```
[1, 2, 3, 4, 5, 6, 7, 8]
```

15. Create a function that will produce an alphanumeric string at random with a certain length.

```
function generateRandomString(length) {  
  
  const alphanumeric =  
  
  'ABCDEFGHIJKLMNOPQRSTUVWXYZabcdefghijklmnopqrstuvwxyz0123456789';  
  
  let result = '';  
  
  for (let i = 0; i < length; i++) { const randomIndex =  
    Math.floor(Math.random() * alphanumeric.length); result +=  
    alphanumeric.charAt(randomIndex); } return result; }
```

**Take your Knowledge
Test Report**

Check your Score



16. To predict the output variable from a single input feature, apply the linear regression technique.

```
import numpy as np  
  
class LinearRegression:  
  
    def __init__(self):  
  
        self.coefficients = None
```

```
def fit(self, X, y):

    X = np.column_stack((np.ones(len(X)), X))

    self.coefficients = np.linalg.inv(X.T.dot(X)).dot(X.T).dot(y)

def predict(self, X):

    X = np.column_stack((np.ones(len(X)), X))

    return X.dot(self.coefficients)
```

17. Describe the ACID properties of database transactions.

The letters ACID stand for Isolation, Atomicity, Consistency, and Durability. Database atomicity guarantees that each transaction is handled as a single functional unit.

Data consistency guarantees that it stays valid and conforms to established guidelines. Concurrency control through isolation keeps transactions from interfering with one another. The ability to withstand system failures guarantees that committed modifications stay in place.

18. Describe the concept of regularization in machine learning.

One method for preventing overfitting in machine learning models is regularization. It encourages the model to be more straightforward and less prone to overfitting the training set by including a penalty term in the loss function.

Finding the ideal mix between making the training data suit the data and making it generalizable to new data is helpful.

19. How do you optimize website performance and improve loading times?

- **Reduce the size of files:** Minimize the size of all the files on your website, including the photos, JavaScript, CSS, and HTML.
 - To get rid of extraneous characters, whitespace, and comments, compress and minify these files.
 - For text-based files, apply compression techniques such as GZIP, and select the right image formats and compression algorithms to minimize file size without sacrificing quality.
- **Cache Implementation:** Employ server-side and browser-side caching strategies. For static resources, set the cache headers to tell the browser to cache files locally.
 - By obtaining files from their cache rather than requesting them from the server again, this enables repeat users to load your website more quickly.
 - Use server-side caching techniques, such as object caching or database query caching, to reduce the amount of time that has to be spent retrieving data over and over by storing frequently requested data in memory.
- **Enhance the important rendering path:** Improve the way above-the-fold material loads and is displayed. Above-the-fold content is the area of a website that users can see without having to scroll.
 - To avoid rendering delays, reduce the number of blocking resources (JavaScript and CSS) and load them in order of priority.
 - To give customers a quicker initial visual experience, take into account strategies like deferred JavaScript execution,

asynchronous loading, and employing CSS media queries for responsive design.

20. How can variables from one class get passed down to any other class?

//Base Class

class A

{

public int a;

}

//Derived Class

class B : A

{

a=15;

}

Conclusion

We hope these TCS interview questions and answers will be helpful for the aspirants to enter into various jobs in TCS. Gain expertise with technical and non-technical skills through our [**placement training institute in Chennai.**](#)