

TCS

TATA CONSULTANCY SERVICE

1. Five people (P, Q, R, S, T) are sitting in a row facing North. S is sitting between Q and R. P is at the immediate left of Q. T is at the extreme right end. Who is sitting in the middle?

Answer the question. "Who is sitting in the middle?" It's S.

2. Pointing to a photograph, a man said, "I have no brother or sister, but that man's father is my father's son." Whose photograph was it?

The Answer: His son's photograph.

3. You are given an array of N-1 distinct integers in the range of 1 to N. There is one number missing. Write a function to find the missing number.

Example: Input: arr = [1, 2, 4, 5], N = 5. Output: 3.

Code:

```
def find_missing_number(arr, N):
    total_sum = N * (N + 1) // 2
    array_sum = sum(arr)
    return total_sum - array_sum

# Example
arr = [1, 2, 4, 5]
N = 5
print(find_missing_number(arr, N)) # Output: 3
```

4. Write a function that takes a string as input and returns the string reversed. You should not use any built-in reverse functions.

Example: Input: "hello". Output: "olleh".

Code:

```
1
2 def reverse_string_manual(s):
3     """
4         Reverses a string without using built-in reverse
5         functions.
6
7     Args:
8         s: The input string.
9
10    Returns:
11        The reversed string.
12    """
13
14    reversed_s = ""
15    # Iterate from the last index (-1) to the first
16    # -(len(s)+1)) with a step of -1
17    for i in range(len(s) - 1, -1, -1):
18        reversed_s += s[i]
19    return reversed_s
20
21 # --- Test Case ---
22 my_string = "TCS is a great company"
23 print(f"Original: {my_string}")
24 print(f"Reversed: {reverse_string_manual(my_string)}")
25 # Expected Output: Reversed: ynapmoc taerg a si SCT
26
27
```

5. In a week in July the average daily temperature of Monday to Wednesday was 27 degrees and of Tuesday to Thursday was 24 degrees.if the temperature remained constant throughout in any given day.

Answer: The value of the temperature in thu is 18

6. A sum of Rs 2387 is divided into three parts in such a way that one-fifth of the first part, half of the second part and one-fourth of the third part are equal. Find the sum of five times the first part, three times the second part and four times the third part (in rupees).

Answer: 5 times of 1st part + 3 times of 2nd part + 4 times of 3rd part = $5X + 3Y + 4Z$

$$= 5(5K) + 3(2K) + 4(4K) = 5(5 \cdot 217) + 3(2 \cdot 217) + 4(4 \cdot 217)$$

$$= 5425 + 1302 + 3472 = 10199$$

7. The average weight of 10 students is 40 kg. If a new student is joins in the group having weight 51 kg, what is the new average weight?

Answer: 41 kg

8. The person “A’s” salary is 20% lower than “B’s” salary. By what percentage is B’s salary higher than A’s salary?

Answer: 25%

9. A can complete a job in 15 days. B can complete the same job in 10 days. If they work together, how many days will it take them to complete the job?

The Answer: 6 days.

10. Five people (P, Q, R, S, T) are sitting in a row facing North. S is sitting between Q and R. P is at the immediate left of Q. T is at the extreme right end. Who is sitting in the middle?

The Answer: It's S.

11. Pointing to a photograph, a man said, "I have no brother or sister, but that man's father is my father's son." Whose photograph was it?

The Answer: His son's photograph.

12. : Write a function that checks if a given string is a palindrome (reads the same forwards and backward), ignoring case.

Example: Input: "Madam". Output: True. Input: "Hello". Output: False.

The Code (Python using the two-pointer method):

```
1 def is_palindrome(s):
2     """
3     Checks if a string is a palindrome, ignoring case.
4
5     Args:
6         s: The input string.
7
8     Returns:
9         True if it's a palindrome, False otherwise.
10    """
11
```

```
1 # Normalize the string
1
2     s = s.lower()
1
2
1     left_pointer = 0
3
4
1     right_pointer = len(s) - 1
1
4
1
5 while left_pointer < right_pointer:
1
6
7     if s[left_pointer] != s[right_pointer]:
1
6
8         return False
1
7
9     left_pointer += 1
1
8
1
9
10    right_pointer -= 1
1
0
1
2 # --- Test Cases ---
1
```

```
2 print(f'''Racecar' is a palindrome:  
2 {is_palindrome('Racecar')}") # True  
  
2 print(f'''TCS' is a palindrome: {is_palindrome('TCS')}")  
3     # False  
  
2 print(f'''A man a plan a canal Panama' is a palindrome:  
4 {is_palindrome('A  
  
2  
5  
  
2  
6  
  
2  
7  
  
2  
8
```

13. What is the smallest number that is divisible by 8, 12, and 18?

The Answer: The smallest number is 72.

14. The HCF of two numbers is 9, and their LCM is 108. If one number is 27, find the other number.

The Answer: The other number is 36.

15. Which smallest number must be added to 3456 to make it divisible by 11?

The Answer: The smallest number to add is 2.

16. Find the missing term: A1, C3, E5, G7, ?

The Answer: I9

17. Which is essential for communication?

The Answer: Message

18. A man spends 75% of his income. If his income increases by 20% but his spending habits remain unchanged, by what percentage does his savings increase?

The Answer: 80% Increases

19. Solve for x: $5x + 3 = 2x + 18$.

The Answer: x=5

20. At what time between 3 and 4 o'clock will the hands of the clock overlap?

The Answer: 3:16

Infosys

INFOSYS

1. What are DDL and DML commands in SQL?

DDL stands for Data Definition Language. DDL commands are used to define database schema, that is, to create and modify the database object structure. **CREATE, ALTER, DROP, TRUNCATE**, and so on are examples.

DML stands for Data Manipulation Language. DML commands are used to manipulate data in a database. **INSERT, UPDATE, and DELETE** are a few examples.

2. What is SDLC?

SDLC is the process by which a software development team designs, builds, maintains, and tests a software product. The software development life cycle is a method of developing a software product in a systematic manner based on the needs of the customer. The life cycle provides various stages for developing a high-quality and efficient software product.

3. What are the advantages of a waterfall model?

- It is simple to use and comprehend.
- There is no overlap between the phases.
- For small projects, this model is ideal.
- The price is low.
- It's simple to keep up with.

4. What is a View?

A view is a virtual table that only contains a subset of a database's data. Because there are no views, it takes up less storage space. Depending on the connection, data from one or more tables can be combined in a view.

5. List the different types of memory areas allocated by JVM?

- **Class Memory:** Saves method data, fields, and method codes, among other things.
- **Heap Memory:** This type of memory is used to store objects.
- **Stack Memory:** Memory is allocated to store local variables and the order in which methods are executed in the stack.
- **Program Counter:** This is a register (PC) that stores the address of the currently executed instruction.
- **Native Method Stack:** All native methods are stored in the Native Method Stack.

6. When was Infosys founded?

Infosys was founded on **2nd July 1981** in Pune.

7. Mention the different types of arguments?

Call by value, Call by Reference

8. What is the fullform of HTML?

Hypertext Mark up Language

9. Define JAVA?

JAVA is a independent programming language. Used in applicatio program such as mobile and web based apps. Only the value can be used to pass variables.

10. Print first N fibonacci number (using JAVA)

```
import java.util.Scanner;  
  
public class Fibonacci {  
  
    public static void printFibonacci(int n) {  
  
        int a = 0, b = 1, c;  
  
        for (int i = 0; i < n; i++) {  
  
            System.out.print(a + " ");  
  
            c = a + b;  
            a = b;  
            b = c;  
        }  
    }  
}
```

```
c = a + b;
```

```
a = b;
```

```
b = c;
```

```
}
```

```
}
```

```
public static void main(String[] args) {
```

```
    Scanner scanner = new Scanner(System.in);
```

```
    int n = scanner.nextInt();
```

```
    printFibonacci(n);
```

```
    System.out.println();
```

```
    scanner.close();
```

```
    }
```

```
}
```

11. Reverse a string? (in Java)

```
import java.util.Scanner;
```

```
public class ReverseString {
```

```
    public static void main(String[] args) {
```

```
        Scanner scanner = new Scanner(System.in);
```

```
        String str = scanner.next();
```

```
        StringBuilder reversed = new StringBuilder(str).reverse();
```

```
System.out.println(reversed);
```

```
scanner.close();
```

```
}
```

```
}
```

12. Find largest element in an array(by using python)?

```
n = int(input())
```

```
arr = list(map(int, input().split()))
```

```
print(max(arr))
```

13. If WAIT + ALL =
GIFTS; Then what is the
value of G+I+F+T? (If A =6
& S=5) Answer: 11

14. Ravi was running a race
and beats Raja by 10
seconds. Ravi in the same
race beats Ramesh by 16
sec. If Ra^Wesh finished the
race in 19 sec, Raja
finished it in.....
Answer: 29 seconds.

15. If Rs. 58 is divided among
150 children such that each
girl and each boy gets 25 p
and 50 p respectively. Then
how many girls are there?
Answer: 68

16. Water tax is increased by 20% but its consumption is decreased by 20%. The increase or decrease in the expenditure is: Ans: 4% decrease.

17. A cube, painted yellow on all faces is cut into 27 small cubes of equal size. How many small cubes are painted on one face only?

Answer: 6

18. A man buys two cycles for a total cost of Rs.900. By selling one for $\frac{4}{5}$ of its cost and other for $\frac{5}{4}$ of its cost, he makes a profit of Rs.90 on the whole

transaction. Find the cost
price of lower priced cycle.

Answer:300

19.In an entrance exam of 200 objective questions, a student can score 1 point for every correct answer, loss $\frac{1}{4}$ points for every wrong answer and loss 1/2 point for every unanswered question. If he attempts only 160 questions and he scores 100 points then the number of questions answered by him correctly is: Answer:128.

20. There are two pipes in a tank. Pipe A is for filling

the tank and pipe b is for
emptying the tank. If A can
fill the tank in 10 hours and
b can empty the tank in 15
hours then find how many
hours will it take to
completely fill a half empty
tank? Answer: 15 hrs.

Wipro

Accenture

