

Question pattern might be different depending on stack & year (e.g. 2023 QA exam had test cases instead of 1 programming question)

Starting from Fall 2024, Bajra takes Aptitude tests, Technical tests, then Interviews (people have said there's 2 rounds of interviews).

### **Note: Adding questions to this doc**

Any edits you make will be saved as suggestions on the right side. Switch to viewing mode if you don't want to make accidental edits. Do not delete any useful suggestions, leave it as is. I will approve the suggestion when I have time. Please mention the month, year, tech stack and round (aptitude, technical, interview) in the title, and format the title as h2.

This doc could use more questions, info for QA & the interview round. I (and future applicants) would greatly appreciate it if you could add questions you got asked after your test. All the best.

Use the outline / table of contents on the left to navigate. To enable outline, go to View > Show Outline

### **Practice resources:**

#### **Aptitude round**

[GeeksForGeeks](#) (Note: CS & programming questions are not asked in this round)

#### **Technical round**

- SQL:
  - [SQL practice questions \(W3Schools\)](#)
  - <https://www.sql-practice.com/>
- Programming challenges:
  - [Leetcode](#) (Past programming questions were from Leetcode easy category)
  - [Neetcode](#) (List of 150 recommended Leetcode questions focusing on DSA. Might be overkill for trainee test :p)
  - [Codewars](#) (Slightly easier than Leetcode with gamified level-up system)
- Miscellaneous: Revise OOP, DSA, DBMS concepts from your syllabus
- AI:
  - [Topics asked for non-Bajra AI internship](#) (This is not for Bajra so all of these might not be necessary for Trainee test)

### Interview round:

- [Bajra .NET Trainee interview](#)
- [Bajra QA Trainee Interview](#)
- [GeesForGeeks Interview prep](#) (this is for general purpose interview, no need to go in-depth for Trainee interview)

### May 2025 (AI Technical Test)

20 MCQs related to AI + 4 programming questions are asked

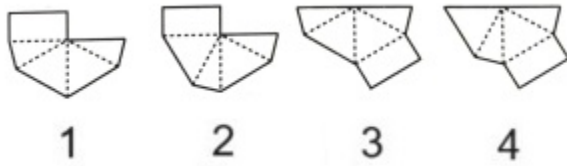
For MCQ, "general questions like softmax function kina use huncha, multi linear regression ma dependent variable use huncha ki independent"

1. Write a program to modify a number in such a way that if a digit is odd, increment it by 1, and if a digit is 9 then replace it with 0.  
For example: Input: 26319053  
Output: 26420064
2. WAP to reverse a given string and add to the original one.  
For example: Input: String  
Output: StringgnirtS
3. WAP where a given list is updated by replacing each number with the count of numbers less than that number.  
For example: Input: [8, 2, 3, 1, 3]  
Output: [4, 1, 2, 0, 2]

### May 2025 (Aptitude Test)

1. If 20 men can build a wall in 15 days, in how many days 30 men can build a wall?
2. a mother is 5 times older then her daughter, if 3 years back she is 6 times older then what is the present age of the daughter
3. if in a basket apples are 4 times the oranges, what is the total number of fruits in the basket.
4. A car travels from Town A to Town B in 100km/hr in 2 hours and on the return journey, it travels at a speed that is 75 km/h slower and takes 2.67 hours. What is the avg speed of the car?
5. If  $a:b = 2:3$ ,  $b:c=4:7$  and  $c:d=3:2$  what is  $a:d$ ?
6. If the word PROGRAM means OQNFQZL, what does COMPILE mean?
7. If BOOK codes to CQQM and GAME codes to HCOG, what does PLAY code to?

8. Which of the following figures shown below, when folded along the dotted lines, will form a pyramid shaped box with a rectangular base? (Ans: 4)



9. Sita travels 3 km south from her home to her friend's house. Then she travels 7 km east to reach her college. What direction is her college from her home?  
a. East b. South-east c. South-west d. South
10. Which is the odd one out?  
a. Nitrogen b. Ammonia c. Manure d. Helium
11. If SYSTEM is written as METSYS what will PYTHON coded to?
12. Find the ratio of Rs.4.75 and 75 paise

### Feb 2025 (Aptitude Test)

1. If eager is coded as 51759 then how will cadet be coded
2. 50 people consume 350 kg rice in 30 days. In how many days will 35 people consume 50 kg of rice?
3. If 3 men or 4 women can plough a field in 43 days, how long will 7 men and 5 women take to plough it
4. Two numbers are respectively 20% and 50% more than a third number. The ratio of the two numbers is:
5. Which is the odd one out?
  - a. Congregation
  - b. Dispersion
  - c. Compilation
  - d. Convocation
6. If  $a=2$ ,  $c=4$ , then particle =?
7. If a shepherd had 17 sheep. All but nine died. How many sheep remain alive?
  - a. Nil
  - b. 8
  - c. 9
  - d. 17

8. A sum of money is invested at a simple interest rate. If the principal amount is \$2,000 and the interest earned after 5 years is \$1,000, how long will it take for the same amount of money to earn \$1,500 in interest if the rate of interest remains the same?
- 6 years
  - 7.5 years
  - 10 years
  - 11.5 years
9. Find the odd number / letters / word from the given alternative.
- Chicken
  - Snake
  - Sawn
  - crocodile
10. What will come at the place of question mark? 5,6,9,15,?,40.
11. Sita drives a car in the East direction. She moves 6 km in the same direction and then takes a right turn and moves 15 km. From there she again takes a right turn and moves 10 km. She again turns right and moves for 18 km to reach her destination. Find how far is she now from the starting point?
- 7 km
  - 6 km
  - 5 km
  - 4 km
12. 50 people consume 350 kg of rice in 30 days. In how many days will 35 people consume 50 kg of rice ?
- 2
  - 3
  - 5
  - None of the above
13. Direction: To each of the following questions four probable answers have been given. Select the most appropriate alternative as the answer. While traveling in a train, you found that some college students pulling the alarm chain simply to get down at their desired point, you would -
- With the help of other passengers check them from doing so
  - let them pull the chain but check them from detraining
  - Inform the guard of the train as soon as it stops

- d. Keep quiet and do nothing
14. A six sided unbiased die with four green faces and two red faces is rolled seven times. Which of the following combinations is the most likely outcome of the experiment?
- a. Three green faces and four red faces.
  - b. Four green faces and three red faces.
  - c. Five green faces and two red faces.
  - d. Six green faces and one red face
15. A car travels from Town A to Town B in 4 hours. On the return journey, it travels at a speed that is 20 km/h slower and takes 5 hours. What is the distance between Town A and Town B? (**400km**)
- a. ~~200 km~~
  - b. ~~220 km~~
  - c. ~~240 km~~
  - d. ~~260 km~~
16. The total of the ages of Amar, Akbar and Anthony is 80 years. What was the total of their ages three years ago ?
- a. 71
  - b. 72
  - c. 74
  - d. 77

### Feb 2025 (AI Technical Test)

*Only 4 questions are asked in the test.*

1. For two lists of strings, check if they make the same string or not.  
Eg: i/p=word\_1=['ab','c'], word\_2=['a', 'bc'], o/p = true(both make abc)  
i/p:word\_1=['ab','c'], word\_2=['a', 'bd'], o/p = False(one makes abc another makes abd)
2. Repeatedly add the digits of a number until single digit:  
i/p:38,o/p:2(3+8=11,1+1=2)
3. check if given character is alphabet , i/p=2,o/p=False
4. Parseltongue(add sss after each character):  
i/p="Hi how are you",o/p="Hsssisss hsssoossswss assrrsssesss ysssoosssusss"

5. Write a function to find the longest common prefix string amongst an array of strings. (repeated question from previous year)

If there is no common prefix, return an empty string "".

Example:

Input: strs = ["flower", "flow", "flight"]

Output: "fl"

6. Print the middle character of a string. If the length of the string is even, then there would be two middle characters,

Example:

Input: javascript

Output: sc

Input: bajra

output:j

### Fall 2024 (Software Engineering Aptitude Test)

1. You started to move towards east in your own lawn and stopped after moving 45 m . Now you turned to my right hand side and moved 30 m. How much minimum distance do i have to cover to reach my starting point?(54.08)
2. Choose the missing terms out of given alternatives: N5V, K7T, ?, E14P, B19N:
  - H9R
  - H10Q
  - H10R (answer)
  - I10R
3. If you walk south for 20 m and from there you go towards right hand side for 10 m and again turn right hand side for 15 m . Which direction are you on?(north)
4. A is thrice good as B and therefore is able to finish a job in 40 days less than B. Working together they can do it in how many days?(15 days)
5. A man travels from point a to b at a speed of 50 km/hr . on his return from b to a he travels at a speed of 50km/hr and takes 5 hours. What is total distance traveled by the man?(500km)
6. if A=2, C=4, then PARTICLE is? (1721921104136)
7. find the odd number / letters / word from the given alternative:

- 1975 - 1579(answer)
  - 3152 - 5321
  - 4283 - 8432
  - 7319- 9731
8. A sum of money is invested at a simple interest rate of 5% per annum. if the total amount after 7 yrs is 1680, what would be the total amount after 10 yrs if the same principal is invested at the same interest rate? (1866.67)
9. choose the odd pair of letters from the list
- PQT
  - DEH
  - UVY
  - IJN (answer)
10. If a ratio 5:7:8 is increased by 40%,50%,75% respectively, what will be the ratio after increasing? (7:10.5:14)
11. If 5 men or 7 women can earn 5250 per day . How much would 7 men and 13 women earn per day? (17100)
12. if 564 means "study very hard" and 736 means "hard work pays" and 432 means "study and work" then which is the code for very:
- 6
  - 4
  - 5 (answer)
  - 3
13. In a box there are 5 blue, 8 white and 3 yellow balls. one ball is picked up randomly. What is the probability that it is neither white nor blue? (3/16 or 0.1875)
14. One term in the number series is wrong . find the wrong term. 10, 14, 28, 32, 64, 68, 132 (Answer: 132)

#### Fall 2024 (Software Engineering Screening / Technical Test)

1. What is the concept of serialization in oop?
2. Which tree traversal visits the root node then the left subtree and finally the right subtree?

3. Which sql function is used to combine the values of multiple rows into a single string?
4. What is a trigger in a database?
5. Which specifier allows a programmer to make the private members which can be inherited?
6. What is the purpose of SQL INDEX keyword?
7. Given a positive integer n find the sum of all integers in the range [1, n] inclusive that are divisible by 3, 5, or 7. Return an integer denoting the sum of all numbers in the given range satisfying the constraints.

for example:

input: n=10

output: 40

8. What type of join returns all records when there is a match in either the left or right table?
9. What is the implicit return type of constructor?
10. Write a program to calculate the product of the digits located at odd positions in a given number:  
Input: 563812  
output: 15
11. Which of the following features interacts one object with another object?
  - message reading
  - message passing
  - data transfer
  - data binding
12. What is the purpose of depth first search?
13. When does the arrayIndexOutOfBoundsException occur?
  - not an exception at all
  - compile time
  - run time
  - not an error
14. What is the purpose of SQL LIKE operator?
15. Which sorting algorithm can be used to sort a random linked list with minimum time complexity?



16. Check if two given strings are isomorphic to each other. Return true if they are isomorphic otherwise return false.
17. Which sql statement is used to update data in a table?
18. Write a program to check if a given number is perfect or not. a number is said to be perfect if the sum of all its factors excluding the number itself is equal to the number. Return 1 if the number is perfect otherwise return 0

input: 28

output: 1

## Note:

**Before Fall 2024, Bajra only took one test before the interview so the questions below are a mix of aptitude & technical.**

## Summer 2024 (React Stack)

### 25 MCQs

(there are more than 25 questions here because other people also contributed some questions they got)

- 1) Which of the following is a trait of distributed dbms?
  - a) Data redundancy
  - b) Data independence (answer)
  - c) Single point of failure
  - d) Centralized system
- 2) What is composition in OOP
  - a) Combining multiple classes
  - b) achieving multiple inheritance
  - c) instantiating other objects in an object (answer)
  - d)
- 3) What does “composition over inheritance” mean?
- 4) What is serialization in OOP? (Ans: converting data to byte stream)
- 5) Which of these is an abstract class?
  - a) Class which can't be instantiated and may have abstract methods
  - b)
- 6) Which type of non volatile storage is used in database?
  - a) Ram
  - b) Rom
  - c) Cache
  - d) Hard disk (answer)
- 7) What does ODBC stand for?
  - a) Open Database Connectivity**
  - b) Oracle Database Connectivity
  - c)
- 8) Which data structure uses First In, First Out concept? (queue)
- 9) Which data structure both adds and removes data from same position? (stack)

10) What type of graph isn't cyclic (i.e. starting and ending nodes aren't connected)?

(Ans: Path)

11) What is the purpose of depth first search?

- a) To find depth
- b) To travel as deep as possible for every branch

12) What is OUTER JOIN used for?

13) What is TRUNCATE used for? (To delete all the rows in the table)

14) What is WHERE clause used for?

15) Which of the following queries has an error

- a) Select empid, salary where salary > 10000

Reason: no FROM clause

16) Which of these statements is correct for adding column to the table

17) When does ArrayIndexOutOfBoundsException run?

- a) At compile time
- b) At runtime (answer)
- c) Not an exception

18) Which SQL command is used to add a new column to an existing table?

Ans: ALTER COLUMN

19) Which SQL command is used to grant specific privileges to a user?

Ans: GRANT

20) INDEXES are mainly used for?

- a. Faster data retrieval from tables (answer)
- b. Faster cache retrieval from views
- c. session caches for users
- d. Main catalog for db objects

21) Which data structure is used in Hierarchical model records?

Ans: Tree

22) Which of the following feature is also known as run-time binding or late binding?

Ans: Dynamic binding

23) Which of the following feature interacts one object with another object?

Ans: Message passing

24) This list of data in which elements can be inserted and removed at the same end is called ?

Ans: Stack

25) What is the use of constructor?

Ans: Initialize object

26) Which algorithm is used for Minimum spanning tree?

Ans: Kruskals

27) Full form of DBMS?

28) Full form of RDMS?

29) Full form of DFD?

30) What does rollback in SQL do?

(ans: revert changes made in current transaction, before they are committed)

## 2 programming questions

(only 2 were asked, extra ones contributed by other people)

1) Given array of sentences, find maximum number of words in a sentence. Each word in sentence is separated by a single space and sentences don't have trailing or leading spaces.

E.g: ["Hello there", "Hi", "How are you"] returns 3

2) Given a string and array of integer indexes of same length, return swapped string such that string[i] is replaced by string[indexes[i]]

E.g: ("abcde", [5, 4, 1, 2, 3]) returns "edabc"

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### Check if a string is subsequence of another string



Marks: 5

Given two strings `s` and `t`, return true if `s` is a subsequence of `t`, or false otherwise.

A subsequence of a string is a new string that is formed from the original string by deleting some (can be none) of the characters without disturbing the relative positions of the remaining characters. (i.e., "ace" is a subsequence of "abcde" while "aec" is not).

For Example:

Input: `s = "abc"`, `t="ahbgdc"`

Output: true

3)

## 27 Average salary of employee



Marks: 5

You are given an array of unique integers salary where salary[i] is the salary of the ith employee.

Return the average salary of employees excluding the minimum and maximum salary.

For Example:

Input: salaries = [4000, 3000, 1000, 2000]

Output: 2500

4)

### Fall 2023 (Angular Stack)

20 mcqs

- 1) which tree traversal visits root node 1st, then left subtree, then right subtree
  - a) In order
  - b) Pre-order**
  - c) Post-order
  - d) Level-order
- 2) What does TRUNCATE clause do in SQL
- 3) Which clause is used to delete rows
- 4) What is the super keyword used for (ans: accessing base class)
- 5) What are constructors used for (ans: instantiating a class)
- 6) What are interfaces used for (ans: creating blueprint of class)
- 7) What access modifier is used to limit access to properties inside a class only? (ans: private)
- 8) What sql clause gives the number of rows in a table
- 9) What is UNION clause used for
- 10) What is WHERE clause used for
- 11) Which normalization form deals with partial dependency
- 12) Which relational model organizes data in a tree-like structure with root node (ans: Hierarchical)
- 13) Which data structure is used to implement recursion (ans: stack)

- 14) What is hashing used for (ans: indexing)  
15) Whose algorithm is used to find minimum spanning tree (ans: Kruskal)  
16) What does big O notation represent (ans: worst time complexity)

**Programming (language choices: Javascript, Python, Ruby, C#, C++(?))**

1. Given an array of words, find the longest prefix common across all words. Else, return an empty string
  - a. E.g:  
["flower", "flow", "fly"] => "fl"  
["flower", "flow", "abc"] => ""
2. Given an array of words, words[i] can be paired with words[j] if: words[i] is the reverse of words[j]. Return number of possible pairs (Each word can only be in one pair). Else, return -1
  - a. E.g: ["ab", "cd", "dc", "ba"] => 2

**SQL question:**

- 2 ota table ko schema diyeko thiyo (column name, type). Table chai Employee ra EmployeeInfo naam ko, ani euta common column bata dubai lai join garna milcha
1. Write query to get id, name and salary from Employee
  2. Find employee records where salary is > 10,000
  3. Find employees who were born in 1990
  4. Find employees who were born before 21 december, 1990
  5. Khai k inner join ho kyare time bhyayena
  6. Khai k union ho ki k thiyo