Quantitative Aptitude

Q.1 In how many ways can 10 persons be seated around a circular table having 10 seats?

a. 10!
b. 9!
c. 10!/2
d. 9!/2

Q.2 If the cost price is 80% of the selling price, then what is the profit in percentage?

a. 20%
b. 25%
c. 16%
d. 22.5%

Q.3 Let a and b be natural numbers. If $a^2 + ab + a = 14$ and $b^2 + ab + b = 28$, then (2a + b) equals:

a. 10
b. 7
c. 8
d. 9

Q.4 The number of ways of distributing 20 identical balloons among 4 children such that each child gets some balloons, but no child gets an odd number of balloons, is:

a. 76
b. 91
c. 84
d. 85

Q.5 Choose the correct alternative. How many odd numbers between 2000 and 3000 are divisible by 11?

a. 90
b. 45
c. 46
d. 91

Q.6 Trains A and B start traveling at the same time towards each other with constant speeds from stations X and Y, respectively. Train A reaches station Y in 10 minutes while train B takes 9 minutes to reach station X after meeting train A. Then the total time taken, in minutes, by train B to travel from station Y to station X is _____.

a. 6
b. 10
c. 15
d. 12

Q.7 A company consist of two types of employees i.e those at executive level and those at staff level. Average age of the 30 executive level employees in a company is 44 years and that of 90 employees at the staff level is 36 years. What is the average age of all the employees in the company?

a. 36
b. 39
c. 40
d. 38

Q.8 Two buses P and Q leave at 8:00 AM from X and Y respectively, Speed of P is 15 m/s and that of Q is 20 m/s. Two buses cross each other at 4:00 PM at Z.

How many more hours from Z onwards will Q take to reach X?

a. 6
b. 4
c. 10
d. 8

Q. 9 At which of the following points do the curves $y = 2X^2-16X+30$ and $y = 2X-6$ intersect each other?

a. (3,0)
b. (6,6)
c. (3,6)
d. Both A and B

Q.10 What is the probability of getting a sum 9 from two throws of a dice?

a. 1/6
b. 1/8
C. 1/9
d. 1/12

Q. 11 In how many ways can 10 exam papers be arranged so that the best and worst papers never come together?

a. 8*9!
b. 8*8!
C. 7*9!
d. 9*8!

Logical Reasoning

Q.1 Complete the series; DIT, GMQ, KQM, PUH,

a. VYB
b. UYB
c. VXC
d. TUJ

Q.2 144 is related to 77 in the same way as 168 is related to

a. 87
b. 88
c. 65
d. 89

Q.3 In a certain code language, '' means 'is less than', 'I' means 'is greater than' and ' * means 'is equal to' and given that a^b, c*d, and clb, then which of the following is true?

a. d^a
b. b#d
c. a*c
d. a^b^c

Q.4 Each of the five balls, such as Red, Blue, Yellow, Black and Green is of a different weight. It is known that: (i) Black ball is heavier than the Red and Blue balls. (ii) Yellow ball is lighter than the Red ball. (iii) Blue ball is heavier than the Red and Green balls. Which ball could be the lightest one?

a. Only Green
b. Only Yellow
c. Either Yellow or Green
d. Either Yellow or Red

Q.5 Six students P,Q,R,S,T and U are sitting around a Hexagonal table each at one corner and facing the centre of hexagon. P is second to the left of U, Q is neighbour of R and S. T is second to the left of S. Who is on the right of R?

a. U
b. P
c. S
d. Q

Q.6 If 'MOBILITY' is coded as "13-15-2-9-12-9-20-25", then 'EXAMINATION' coded as:

a. 5-1-24-13-9-14-20-9-15-14
b. 5-24-1-13-9-14-1-20-9-15-14
c. 5-24-13-1-9-14-20-9-15-14
d. 5-7-15-9-4-13-9-5-5-15-14

Q.7 There is a four generation and fourteen member family consisting of seven men and five married couples. M is the mother of O and P. O and P are the only brothers in the family. Q is the daughter in law of N. P is the uncle of S. T and W. O has one unmarried niece. W. V and T. X are couples. Y is O's granddaughter. Z is the great grandson of M. U and S are unmarried and R is married. Y and 2 have the same grand parents but different parents. X and W have one child each.

How is N related to W?

a. Grandfather
b. Grandmother
c. Father of father-in-law
d. Mother of mother-in-law

Q.8 There are seven persons A, B, C, D, E, F and G. A, B, C and D wear read dresses while E, F, and G wear ellow dresses. They stand in a row from left to right such that:

i. No two people wearing the same colored dresses are together.
ii. C is at the 7th position from the left and F is to the immediate right of B.
iii. G is standing between A and B.

Who is to the immediate right of D?

a. E
b. G
c. F
d. Cannot be determined

Q.9 Choose the correct alternative

In a certain code language,

"Old is Gold" is coded as "Yaylo Payos Gyo"

"India Is Beautiful" is coded as "Gyo Anyo Lyago"

"India is Old" is coded as "Payos Lyago Gyo"

What is the code for "Beautiful"

a. Anyo
b. Lyago
c. Payos
d. Gyo

Q.10 In a class of 60 students, 20 students like pink and 30 students like blue. 5 students like both the colors.The number of students who like neither blue nor pink is?

a. 30
b. 25

c. 15

d. 20

Q.11 You have nine identical coins, of which 8 have same weight and one has a different weight. You also hav a pan balance.

What is the least number of trials in which you can determine which of the coin is "faulty" if it is known that the faulty coin has a higher weight than the others

a. 1

b. 2

c. 3

d. 4

Q.12 A man has some hens and pigs. If the number of heads be 48 and the number of feet equals 140, then the number of hens will be:

a. 24

b. 26

c. 21

d. 23

Q.13 A two-digit number is such that the product of the digits is 8. When 18 is added to the number, then the digits are reversed. The number is:

a. 18

b. 24

c. 42

d. 81

Language Comprehension/ Verbal Ability

Q.1 For the word given below, a contextual usage is provided. Pick the word From the alternatives given that is closest in meaning in the given context. Concede: Akhilesh Yadav Conceded defeat in UP and said that the loss of his Samajwadi party would be analyzed.

a. Establish
b. Refuse
c. Contradict
d. Acknowledge

Q.2 Please fill the blanks with the help of correct word from pairs given below and complete the sentence:
(elicit/illicit; council/counsel; hoard/ horde; dependents/defendants)

(a) **He was charged with sale of narcotics.**
(b) **The Chief Minister was given a to keep off the epidemic.**
(c) **A of terrorists have attacked the army base.**
(d) **The of the university employees are granted full free fellowship.**

A. (a)Elicit; (b) Council; (c) Hoard; (d) Dependents
B. (a) Elicit; (b) Counsel; (c) Hoard; (d) Defendants
C. (a) Illicit; (b) Council; (c) Horde; (d) Defendants
D. (a) Illicit; (b) Counsel; (c) Horde; (d) Dependents

Q.3 Pick the appropriate meaning of the underlined idiom in the following sentence: "The lease of our premises has run out."

a. Enfeebled
b. Expired
c. Increased
d. Prolonged

Q.4 Pick the correct sentence:

a. He made a fool of certainly himself
b. Certainly he made a fool of himself
c. Certainly, a fool he made of himself
d. He made a certainly fool of himself

Q.5 Mark the part of the sentence that has an error.

As soon as(1) news of pandemic spread(2), residents begun(3) growing their own food in their(4) gardens.

a. 1
b. 2
c. 3
d. 4

Q.6 Read the following sentences carefully and identify whether the following sentences have been constructed correctly.

Mark the parts containing the error.

Mark [3] if there is no error.

[1]If we change any ingredients in the recipe, [2]/ we will get a different taste.

a. [1]
b. [2]
c. [3]
d. None of these

Q.7 Each question has four sentences. Read the sentences carefully and identify the one that does not use a redundant expression.

a. When told about the plan to attack, the soldier nodded his head in agreement.
b. Ram softly whispered to Divya as he did not want to wake up the children.
c. The prime minister was greeted with a bouquet of flowers.
d. Mona was planning to leave early from office as she had to meet her friends at the mall.

General Awareness

Q.1 What is the theme for 75 years of Independence Day celebrations?

a. Self-reliant India
b. Promote India's culture
c. Nation First, Always First
d. None of the above

Q.2 Which forms of Indian dance shows influence of Persian culture?

a. Bhangra
b. Kathak
c. Rangma
d. Chhau

Q.3 The term butterfly is associated with

a. Kabaddi
b. Boxing
c. Swimming
d. Wrestling

Q.4 Which was the world's first successful electronic computer?

a. PARAM
b. CRAY-1
c. Pascaline
d. ENIAC electronic Numerical Integrator and computer

Q.5 The first country to be labelled as 'banana Republic' was

a. Bermuda
b. Honduras
c. El Salvador
d. Haiti

Q.6 Who is the founder of the Commonwealth Games?

a. Pierre De Coubertin
b. Melville Marks Robinson
c. Astley Cooper
d. None of the Above

Q.7 Which film did bring oscar for ar rahman.?

a. Slum dog millionaire
b. Couples retreat
c. Passage
d. Dil se

Q.8 Who among the following considered as the 'father of artificial intelligence"?

a. Charles Babbage
b. Lee De Forest
c. John McCarthy
d. JP Eckert

Q.9 Which was first virus detected on ARPANET, the forerunner of the internet in the early 1970s?

a. Exe Flie
b. Peeper Virus
c. Creeper Virus
d. Trozen horse

Q.10 What is the theme for 75 years of Independence Day celebrations?

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Technical

Q.1 What can we use in Linux for schedule jobs?

a. Cron job
b. Short job
c. Short lived job
d. Schedule job

Q.2 What is the difference between NAT and PAT?

A. In NAT, Private IP addresses are translated into the public IP address. In PAT, are translated into the public IP address via Port numbers.
B. In NAT, Public IP addresses are translated into the private IP address. In PAT, Itamen are translated into the private IP address via Port numbers.
C. NAT has a one to one or many-to-one relation, while PAT has a many-to-one relation.
D. A and C
E. B and C

Q.3 What is the range of Private IP addresses?

a. 172.16.0.0 to 172.32.255.255
b. 170.16.0.0 to 170.31.255.255
c. 172.16.0.0 to 172.31.255.255
d. 170.16.0.0 to 170.32.255.255

Q.4 How many IPs is AWS reserved for VPC?

a. 2
b. 3
c. 5
d. 6

Q.5 Which types of Ip address can we assign to the organization's network?

a. Public IP address Class A, B and C
b. Public IP address Class D and E
c. Private IP address Class A, B and C
d. Private IP address Class D and F

Q.6 Is Python code compiled or interpreted?

a. Python code is both compiled and interpreted
b. Python code is neither compiled nor interpreted
c. Python code is only compiled
d. Python code is only interpreted

Q.7 Suppose t= (1, 2, 4, 3), which of the following is incorrect?

a. print(t[3])
b. t[3]=45
c. print(max(t))
d. print(lcn(t))

Q.8 Suppose d= {"john":40, "peter":45), what happens when we try to retrieve a value using the expression d["susan"]?

a. Since "susan" is not a value in the set, Python raises a KeyError exception
b. It is executed fine and no exception is raised, and it returns None
c. Since "susan" is not a key in the set, Python raises a KeyError exception
d. Since "susan" is not a key in the set, Python raises a syntax error

Q.9 What will be the output of the following Python code?

```
a=4.5
b=2
print (a/b)
```

a. 2.0

b. 2

c. 2.25

d. none of the mentioned

Q.10 What will be the result of below command in python language:

```
round(0.4) - round(-0.5)
```

a. 0

b. 1

c. 2

d. -1

Q.11 What will be the output of the following Python code?

```
i=1
while True:
        if i%3 ==0:
                break
        print(i)
        i+=1
```

a. 1 2 3

b. error

c. 1 2

d. none of the mentioned

Q.12 What is the process of defining a method in terms of itself, that is a method that calls itself?

a. Polymorphism
b. Abstraction
c. Encapsulation
d. Recursion

Q.13 Which of the following modifiers is used when an abstract method is redefined by a derived class?

a. Override
b. Overloads
c. Base
d. Virtual

Q.14 What will be the output of following code?

```
Console.WriteLine (Convert.ToInt32('A'));
```

a. Compiler Error
b. Runtime Error
c. 65
d. Garbage Value

Q.15 Which of the following operator casts without raising an exception if the cast fails in C#?

a. ?:
b. is
c. as
d. *

Q.16 What will be the output of the following C# code?

```
static void Main (string[] args)
{
    int a, b, c, x;
    a = 90;
    b = 15;
    c = 3;
    x=a-b/3+c*2-1;
    Console.WriteLine(x);
}
```

a. 90
b. 92
c. 89
d. 88

Q.17 What will be the output of the following code?

```
static void Main(string [] args)
{
    int x=4, b = 2;
    x - = b/= x * b;
    Console.WriteLine(x + " " + b);
}
```

a. 4 2
b. 0 4
c. 2 2
d. 4 0

Q.18 Constructor can return a value

a. True
b. False

Q.19 How many Catch blocks you can use with a single Try block?

a. Only 2
b. Only 1
c. Maximum 256
d. As many as required

Q.20 JSON is a _____ for storing and transporting data.

a. xml format
b. text format
c. JavaScript

Q.21 What will be the output for the following code snippet?

```
<p id="example"></p>
<script>
function Func()
{
 document.getElementById("example").innerHTML=Math.sqrt(81);
}
</script>
```

a. 9
b. 81
c. Error
d. 0

Q.22 What will be the output of the following code snippet?

```
var a = Math.max() < Math.min();
var b = Math.max() > Math.min();
print(a);
print(b);
```

a. true false
b. false true
c. true true
d. false false

Q.23 What will be the output of the following code snippet?

```
print(typeof(NaN));
```

a. Object
b. Number
c. string
d. None of the above

Q.24 Which type of constructor will execute first when objęct is created.

a. Private
b. Public
c. Static

Q.25 What will be the output of the following code snippet?

```
a = [1, 2, 3, 4, 5);
print(a.slice(2, 4));
```

a. 3,4
b. 2,3
c. 3,4,5
d. 2,3,4

Q.26 What will be the output of the following code snippet?

```
let a = [1, 2, 3, 4, 5, 6];
var left = 0, right = 5;
var found = false;
var target = 5;
while(left <= right) {
        var mid = Math.floor((left + right)/2);
        if(a[mid] == target) {
                found = true;
                break;
        }
        else if(a[mid] < target) {
                left = mid + 1;
        }
        else {
                right = mid-1;
}}
if(found) {
        print("YES");
}
else {
print("NO");
}
```

a. Yes

b. No

c. Syntax Error

d. None of the above

Q.27 What data structure would you use to implement a system where you can find the most recently used item efficiently?

a. Array
b. Stack
c. Queue
d. LinkedList

Q.28 In object-oriented programming, what is inheritance?

a. Duplicating properties from parent to child.
b. Hiding the internal states of an object
c. Acquiring properties and behaviors from a parent class
d. Using same method name in different contexts

Q.29 What does the `flex` property do in CSS?

a. Defines the flexibility of borders
b. Defines how elements flex inside a container
c. Alters the font size
d. Adjusts brightness

Q.30 Differentiate between Stack and Queue data structures.

a. Stack is FIFO, Queue is LIFO
b. Stack is LIFO, Queue is FIFO
c. Both are FIFO
d. Both are LIFO

Q.31 What is the DOM in the context of web browsers?

a. A JavaScript function
b. A styling method

c. Document Object Model representing the page content
d. Data Object Model for data storage

Q.32 What is the difference between `class' and 'id attributes in HTML?

a. `class' is unique, `id` can be shared
b. `id` is unique, 'class' can be shared
c. Both are unique
d. d. Both can be shared

Q.33 What does the term "Big O notation" refer to in algorithms?

a. Size of the code
b. Amount of output
c. Algorithm's efficiency and scalability
d. Size of input data

Q.34 How is polymorphism used in object-oriented programming?

a. Encapsulating properties
b. Acquiring from parent class
c. Using same method name in different contexts
d. Combining multiple classes

Q.35 Describe the functioning of a binary search algorithm.

a. Searches sequentially
b. Divides the sorted list into halves recursively
c. Searches all elements at once
d. Uses hashing for searching

Q.36 What is the difference between `let`, `const`, and `var` in JavaScript?

a. Scope and mutability
b. Function and block-level declarations
c. Performance and efficiency
d. Both a and b

Q.37 What is the role of constructors in object-oriented programming?

a. To destroy objects
b. To set initial values for object properties
c. To inherit properties
d. To encapsulate data

Q.38 Describe the process to center a block element on a web page using CSS.

a. Use 'align:center'
b. Use 'text-align:center'
c. Use 'margin:auto'
d. Use 'padding:center'

Q.39 How does a linked list data structure differ from an array?

a. Linked list uses pointers, array uses indexes
b. Arrays are dynamic, linked lists are fixed size
c. Both have fixed sizes
d. Both use pointers

Q.40 What are JavaScript closures?

a. Errors in JavaScript code
b. Functions bundled with their lexical scope
c. Methods inside classes
d. Callback functions

Q.41 What is the <!DOCTYPE html> declaration in HTML?

a. A JavaScript command

b. A CSS property

c. An HTML comment

d. Declaration to define the document to be HTML5

Q.42 What is the worst-case time complexity of a linear search algorithm?

a. O(1)

b. O(log n)

c. O(n)

d. O(n^2)

Q.43 In CSS, how would you select all paragraphs (<p>') inside a div element?

a. `div p {}’

b. `div + p {}’

c. `div.p {}`

d. `div> p{}`

Q.44 Explain the concept of abstraction in object-oriented programming.

a. Merging two classes

b. Breaking the application into smaller parts

c. Hiding the complex reality while exposing only the essentials

d. Reusing code from parent classes

Q.45 What is the significance of the 'this' keyword in JavaScript?

a. Refers to the current object

b. Calls a method

c. Refers to parent object

d. Declares a variable

Q.46 Describe the principle of the DRY (Don't Repeat Yourself) approach in programming.

a. Always use loops

b. Never use the same variable name

c. Avoiding redundant code

d. Always comment the code

Q.47 What is a binary tree?

a. A tree with 2 nodes

b. A tree with nodes having at most 2 children

c. A tree with binary values

d. A tree with height 2

Q.48 Explain the CSS box model.

a. A design tool

b. A layout consisting of margin, border, padding, and content c. A 3D modelling concept

d. A shadow effect

Q.49 In object-oriented programming, what is encapsulation?

a. Using same method name in different contexts

b. Hiding the internal states of an object

c. Acquiring properties and behaviours from a parent class

d. Splitting an application into modules

Q.50 Describe how the bubble sort algorithm works.

a. Divides the list and merges them back in order

b. Chooses a pivot and partitions around the pivot

c. Repeatedly steps through the list and swaps adjacent elements if they are in the wrong order

d. Uses hash functions for sorting

Q.51 What are the key differences between 'null' and `undefined' in JavaScript?

a. 'undefined' is a type, 'null' is an object

b. 'null' is a type, `undefined' is an object

c. Both mean the same

d. `null` is an assignment value, `undefined' means a variable hasn't been assigned

Q.52 Explain the difference between depth-first and breadth-first search algorithms.

a. Depth-first goes deep into the tree first, breadth-first goes level by level

b. Both are same, just different names

c. Depth-first goes level by level, breadth-first goes deep into the tree first d. Depth-first uses recursion, breadth-first doesn't

Q.53 What does the term "responsive design" mean in the context of web design?

a. Faster website loading times

b. Using vibrant colors

c. Design that adjusts according to device screen size

d. Using animations

Q.54 In object-oriented programming, what does the term "method overloading" refer to?

a. Increasing the efficiency of a method

b. Using multiple methods with the same name but different parameters

c. Using a method multiple times

d. Overriding parent class methods

Q.55 How can you include an external JavaScript file into your HTML?

a. Using <js src="file.js">`

b. Using <javascript src="file.js">`

c. Using <include src="file.js">`

d. Using `<script src="file.js"></script>`

Q.56 What will be the output of the program?

```
public class Test {
        public static void main(String[] args) {
                Integer a = new Integer(5);
                Integer b = new Integer (5);
                int c = 5;
                System.out.println(a.equals(b));
                System.out.println(b.equals(c));
                System.out.println(a == b);
                System.out.println(a== c && b == c);
}}
```

a. false, true, true, true

b. true, false, true, true

c. true, true, false, true

d. true, true, true, true

Q.57 What SQL command should be used to remove a row from a table in a database?

a. REMOVE FROM table WHERE...

b. UPDATE table REMOVE WHERE...

C. DELETE FROM table WHERE...

d. DROP FROM table WHERE...

Q.58 In which of the following is a single-entity instance of one type related to many entity instances of another type?

a. One-to-One Relationship

b. One-to-Many Relationship

c. Many-to-Many Relationship

d. Composite Relationship

Q.59 Which of the following is not the required condition for a binary search algorithm?

a. The list must be sorted

b. There should be the direct access to the middle element in any sub-list

c. There must be mechanism to delete and/or insert elements in list

d. None of above

Q.60 The use of the break statement in a switch statement is

a. optional

b. compulsory

c. not allowed. It gives an error message

d. None of the above

Q.61 Database management systems are intended to:

a. eliminate data redundancy.

b. Establish relationships among records in different files.

c. Manage file access.

d. All of the above

Q.62 In Java, which of the following definitions is false?

a. private interface Translator implements Runnable{}

b. Abstract class Employee {}

c. public abstract class Person {}

d. public class Manager extends Person {}

Q.63 What will be the output of the program?

```
for(int i=0; i < 3; i++) {
        switch(i) {
                case 0: break;
                case 1: System.out.print("one ");
                case 2: System.out.print("two ");
                case 3: System.out.print("three ");
                }
        }
System.out.println("done");
```

a. done

b. one two done

c. one two three done

d. one two three two three done

Q.64 Which of the following statements is false?

a. we can use equals() to compare two primitive type variables

b. we can't use == to compare one primitive type variable to one object type variable

c. we can use primitive type variable to initialize object type variable

d. we can use object type variable to initialize primitive type variable

Q.65 What is the value of 13?

```
int i1=5;
int i2 = 2;
int i3= i1 / i2;
```

a. 2

b. 3

C. 2.5

d. None of the Above

Q.66 When a method has some local variable as a member, this keyword can be used to,

a. reference the current method variable

b. reference the current class variable

c. A & B both

d. none of the above

Q.67 Who is the parent class of A?

```
Public class A {}
```

a. Object

b. Root

c. No Parent Class

d. Class

Q.68 Which of these is an incorrect array declaration?

a. int arr [] = new int [5]

b. int[] arr = new int [5]

c. int arr [] = {1,2,3,4,5}

d. int arr [] = int [5] new

Q.69 What is the value returned by l.size()?

```
ArrayList l = new ArrayList(2);
l.add(1);
l.add(1);
l.add(1);
```

a. 1

b. 2

c. 3

d. 5

Q.70 Which of the following is a valid Query?

a. SELECT dept, count (dept) FROM employee GROUP BY name

b. SELECT dept, job, count (dept) FROM employee GROUP BY name

c. SELECT dept, AVG(salary) FROM employee

d. SELECT dept, AVG(salary) FROM employee GROUP BY dept

Q.71 A method declared as final means...

a. the method can't be overridden

b. the method returns a constant

c. it leads to a compilation error

d. None of the above

Q.72 Polymorphism

a. Is not supported by Java

b. Refers to the ability of two or more objects belonging to different classes to respond to exactly the same message in different class-specific ways

c. Simplifies code maintenance

d. b & c.

Q.73 You are implementing a library. Among these options, which one do you select to manage unexpected behavior?

a. throw new Unexpected Behavior Exception()

b. System.exit(-1)

c. System.err.println("Error: unexpected behavior")

d. return false

Q.74 What is the value of s?

String s;

a. “”

b. null

c. "\"

d. empty

Q.74 Tower of Hanoi is a classic example of

a. divide and conquer

b. recursive approach

c. b but not a

d. Both a & b

Q.75 If a class C is derived from class B, which is derived from class A, all through public inheritance, then a class C member function can access.

a. protected and public data only in C and B.

b. protected and public data only in C.

c. private data in A and B.

d. protected data in A and B.

Q.76 Among these primitive types, which one exists in Java?

a. var

b. float

c. bool

d. uint

Q.77 Which of the following operations is performed more efficiently by a doubly linked list than by singly linked list?

a. Deleting a node whose location in given

b. Searching of an unsorted list for a given item

c. Inverting a node after the node with given location

d. Traversing a list to process each node

Q.78 Which SQL command would you use to add a row in a table of a database?

a. INSERT

b. ADD

C. UPDATE

d. MORE

Q.79 Given the following Java program, what will be the output of the program?

```
public class Test {
    public static void main(String[] args) {
        signed int x = 10;
        for (int y=0; y<5; y++, x--)
            System.out.println(x + ", ");
    }
}
```

a. 10, 9, 8, 7, 6,

b. 9,8,7, 6, 5,

c. Compilation fails.

d. An exception is thrown at runtime.

Q.80 What will be the output of the program?

```
public class Test {
    static int x =11;
    private int y=33;
    public void method1 (int x) {
        Test t = new Test();
        this.x = 22;
        y = 44;

        System.out.println("Test.x: " + Test.x);
        System.out.println("t.x: + t.x);
        System.out.println("t.y:"+ t.y);
        System.out.println("y: " + y);
    }
```

```
    public static void main(String args[])
    {
        Test t = new Test();
        t.method1(5);
    }
}
```

a. Test.x: 22
    t.x: 5
    t.y: 44
    Y: 44

b. Test.x: 22
    t.x: 22
    t.y: 33
    y: 44

c. Test.x: 11
    t.x: 5
    t.y: 44
    y: 33

d. An exception is thrown at runtime

Q.81 What is the use of the `span` tag in HTML?

a. To create a new line

b. To group block-level elements

c. To group inline elements

d. To add spacing

Technical Round

Q.1 We're going to make our own Contacts application! The application must perform two types of operations:

1. add name, where **name** is a string denoting a contact name. This must store the **name** as a new contact in the application.
2. find partial, where **partial** is a string denoting a partial name to search the application for. It must count the number of contacts starting with **partial** and print the count on a new line.

Given **n** sequential add and find operations, perform each operation in order.

Input Format:

The first line contains a single integer, **n**, denoting the number of operations to perform.

Each line **i** of the **n** subsequent lines contains an operation in one of the two forms defined above.

Constraints:

- 1 <= n <= 100 (**n shows number of operations**)
- **name** and **partial** length must be <= 21 characters.
- It is guaranteed that **name** and **partial** contain lowercase English letters only.
- The input doesn't have any duplicate **name** for the **add** operation.

Output Format:

For each find partial operation, print the number of contact names starting with partial on a new line.

Sample Input:	**Sample Output:**
4 add hack add hackerrank find hac find hak	2 0

Explanation:

We perform the following sequence of operations:

1. Add a contact named **hack**.
2. Add a contact named **hackerrank.**
3. Find and print the number of contact names beginning with **hac**. There are currently two contact names in the application and both of them start with hac, so we print **2** on a new line.
4. Find and print the number of contact names beginning with **hak**. There are currently two contact names in the application but neither of them start with **hak**, so we print **0** on a new line.

Q 2. Alternate positive and negative numbers in the array.

Given an unsorted array **Arr** of **N** positive and negative numbers. Your task is to create an array of alternate positive and negative numbers without changing the relative order of positive and negative numbers.

Note: The Output Array should start with a positive number.

Constraints:

$1 \leq N \leq 107$

$-106 \leq Arr[i] \leq 107$

Example 1:

Input:

N=9

Arr[] = {9, 4, -2, -1, 5, 0, -5, -3, 2}

Output:

9 -2 4 -1 5 -5 0 -3 2

Example 2:

Input:

N = 10

Arr[] = {-5, -2, 5, 2, 4, 7, 1, 8, 0, -8}

Output:

5 -5 2 -2 4 -8 7 1 8 0

Q 3. Given an array of N integers, and an integer K, find the number of pairs of elements in the array whose sum is equal to K.

Constraints:

1<=N<=105

1<=K<=108

1<=Arr[i]<=106

Example 1:

Input:

N=4

K=6

arr[] = {1, 5, 7, 1}

Output:

2

Explanation:

arr[0] + arr[1] = 1 + 5 = 6

and arr[1] + arr[3] = 5 + 1 = 6

Example 2:

Input:

N=4

K=2

arr[] = {1, 1, 1, 1}

Output:

6

Explanation:

Each 1 will produce sum 2 with any 1

Q 4. Find and print the uncommon characters of the two given strings S1 and S2 in sorted order. Here uncommon character means that either the character is present in one string or it is present in another string but not in both. The strings contain only lowercase characters and can contain duplicates.

Input:

The first line of input contains an integer T denoting the number of test cases. Then T test cases follow. Each test case contains two strings in two subsequent lines.

Output:

For each test case, in a new line, print the uncommon characters of the two given strings in sorted order.

Constraints:

1 <= T <= 100

1 <= |S1], [S2] <= 105

Example:

Input:

1

characters

alphabets

Output:

bclpr

Q.5 Create the program which will create 4 output based on given input

- First output will be Fibonacci series based on given input N
- Second output will be reverse of the Fibonacci series based on given input N
- Third output will be the Sum of odd Index off Fibonacci sequence for Example in First output odd Index are (1,2,5,13.).
- Forth output will be the Sum of even Index Reverse off Fibonacci sequence for Example in First output Even Index are (233,89,34).

Note: Index Start From 0.

Input : 14

Output:

- 0, 1, 1, 2, 3, 5, 8, 13, 21, 34, 55, 89, 144, 233
- 233, 144, 89, 55, 34, 21, 13, 8, 5, 3, 2, 1, 1, 0

- 377
- 377

Input: 15

Output:

- 0, 1, 1, 2, 3, 5, 8, 13, 21, 34, 55, 89, 144, 233, 377
- 377, 233, 144, 89, 55, 34, 21, 13, 8, 5, 3, 2, 1, 1, 0
- 377
- 609

Q.6 String Reversal.

Write a function that takes a string as input and returns the string reversed.

Example:

Input: "hello"

Output: "olleh"

Q.7 FizzBuzz:

Write a program that prints the numbers from 1 to 100. But for multiples of three, print "Fizz" instead of the number, and for the multiples of five, print "Buzz". For numbers which are multiples of both three and five, print "FizzBuzz".

Q.8 Palindrome Check:

Write a function that checks whether a given word or phrase is a palindrome. A palindrome is a word, phrase, number, or other sequences of characters that reads the same forward and backward (ignoring spaces, punctuation, and capitalization).

Example:

Input: "A man a plan a canal Panama"

Output: True

Q.9 Factorial:

Write a function that computes the factorial of a given number. The factorial of a number `n` is the product of all positive integers less than or equal to `n`.

Example:

Input: 5

Output: 120 (because 5! = 5 x 4x3x2x1 = 120)

Q.10 There is one array that has integer values, need to create the program that will find the number that has the highest number when sums its neighbours in the array, call it X, and find the number that has the lowest number when sums it's neighbours in the array, call it Y, Single neighbour also allowed, If there is only one neighbour then count that one neighbour only. Now sum both the number (X + Y) and get the output.

Here, neighbours are the previous and next value of the current index, ex. in this array [20, -25, 1, -14, 18, 37, 31] 20 has only one neighbour which is -25 similarly the neighbours of -25 are 20, and 1 so the sum of the neighbours for both the index will be -25 and 21 respectively

X= SUM of the Highest number of neighbours of particular Index

Y=SUM of the Lowest number of neighbours of particular Index

Input: [20, -25, 1, -14, 18, 37, 31]

Output: 10

Input: [10, 20, 15, 2, 23, 90, 67]

Output: 112

Q.11 Find the Missing Number:

You are given an array containing `n` distinct numbers taken from the range 0, 1, 2, ..., n. Write a function that returns the missing number from the sequence.

Example:

Input: [3,7,1,2,8,4,5]

Output: 6

Q.12 program that calculates the sum of First even number and last odd number from 1 to N, where N is a positive integer provided by the user.

Input : -100 Output: -101

Input :- 69

Output :- 71**Q.13**

You are given an array price where prices[i] is the price of a given stock on the i^{th} day.

You want to maximize your profit by choosing a single day to buy one stock and choosing a different day in the future to sell that stock.

Return the maximum profit you can achieve from this transaction. If you cannot achieve any profit, return 0.

Example 1

Input: prices = [7, 1, 5, 3, 6, 4]

Output: 5

Explanation: Buy on day 2 (price = 1) and sell on day 5 (price = 6), profit = 6-1 = 5. Note that buying on day 2 and selling on day 1 is not allowed because you must buy before you sell.

Example 2:

Input: prices = [7, 6, 4, 3, 1]

Output: 0

Explanation: In this case, no transactions are done and the max profit = 0.

Q.13

Program for Largest Sum Contiguous Subarray

Write an efficient program to find the contiguous subarray within a one-dimensional array of numbers that has the largest sum.

Example 1:

Input: nums = [-2, 1, -3, 4, -1, 2, 1, -5, 4]

Output: 6

Explanation: The subarray [4, -1, 2, 1] has the largest sum 6.

Example 2:

Input: nums = [1]

Output: 1

Explanation: The subarray [1] has the largest sum 1.

Example 3:

Input: nums = [5, 4, -1, 7, 8]

Output: 23

Explanation: The subarray [5, 4, -1, 7, 8] has the largest sum 23.

Q.14 Given a binary matrix, find the maximum size rectangle binary-sub-matrix with all 1's.

Input:

0110

1111

1111

1100

Output:

8

Explanation:

The largest rectangle with only 1's is from (1, 0) to (2, 3) which is

1111

1111

Input:

011

111

011

Output:

6

Explanation:

The largest rectangle with only 1's is from (0, 1) to (2, 2) which is

11

11

11