**TCS NQT TECHNICAL QUESTION:**

Problem Statement –

A chocolate factory is packing chocolates into the packets. The chocolate packets here represent an array of N number of integer values. The task is to find the empty packets(0) of chocolate and push it to the end of the conveyor belt(array).

Example 1 :

N=8 and arr = [4,5,0,1,9,0,5,0].

There are 3 empty packets in the given set. These 3 empty packets represented as O should be pushed towards the end of the array

Input :

8 – Value of N

[4,5,0,1,9,0,5,0] – Element of arr[O] to arr[N-1],While input each element is separated by newline

Output:

4 5 1 9 5 0 0 0

Example 2:

Input:

6 — Value of N.

[6,0,1,8,0,2] – Element of arr[0] to arr[N-1], While input each element is separated by newline

Output:

6 1 8 2 0 0

solution :

#include<stdio.h>

int main() {

int n;

scanf("%d", &n);

int L[n];

int j = 0;

for (int i = 0; i < n; i++) {

int a;

scanf("%d", &a);

if (a != 0) {

L[j] = a;

j++;

}

}

for (int i = 0; i < n; i++) {

if (i < j) {

printf("%d ", L[i]);

}

else {

printf("0");

}

}

return 0;

}

Problem Statement –

Joseph is learning digital logic subject which will be for his next semester. He usually tries to solve unit assignment problems before the lecture. Today he got one tricky question. The problem statement is “A positive integer has been given as an input. Convert decimal value to binary representation. Toggle all bits of it after the most significant bit including the most significant bit. Print the positive integer value after toggling all bits”.

Constrains-

1<=N<=100

Example 1:

Input :

10 -> Integer

Output :

5 -> result- Integer

Explanation:

Binary representation of 10 is 1010. After toggling the bits(1010), will get 0101 which represents “5”. Hence output will print “5”.

solution:

#include<stdio.h>

#include<math.h>

int main()

{

int n;

scanf("%d", &n);

int k = (1 << (int)(log2(n) + 1)) - 1;

printf("%d", n ^ k);

return 0;

}

Jack is always excited about sunday. It is favourite day, when he gets to play all day. And goes to cycling with his friends.

So every time when the months starts he counts the number of sundays he will get to enjoy. Considering the month can start with any day, be it Sunday, Monday…. Or so on.

Count the number of Sunday jack will get within n number of days.

Example 1:

Input

mon-> input String denoting the start of the month.

13 -> input integer denoting the number of days from the start of the month.

Output :

2 -> number of days within 13 days.

Explanation:

The month start with mon(Monday). So the upcoming sunday will arrive in next 6 days. And then next Sunday in next 7 days and so on.

Now total number of days are 13. It means 6 days to first sunday and then remaining 7 days will end up in another sunday. Total 2 sundays may fall within 13 days.

solution:

#include<stdio.h>

#include<string.h>

#define MAX\_LENGTH 4

int main()

{

char s[MAX\_LENGTH];

scanf("%s", s);

int a, ans = 0;

scanf("%d", &a);

// Map weekdays to their corresponding values

char weekdays[][MAX\_LENGTH] = {

"mon", "tue", "wed", "thu", "fri", "sat", "sun"

};

int values[] = {6, 5, 4, 3, 2, 1, 0};

// Find the corresponding value for the input weekday

int mapSize = sizeof(weekdays) / sizeof(weekdays[0]);

int m = -1;

for (int i = 0; i < mapSize; i++) {

if (strcmp(s, weekdays[i]) == 0) {

m = values[i]; break; }

} if (m != -1) { // Calculate the answer

if (a - m >= 1) {

ans = 1 + (a - m) / 7;

}

}

printf("%d", ans);

return 0;

}

Airport security officials have confiscated several item of the passengers at the security check point. All the items have been dumped into a huge box (array). Each item possesses a certain amount of risk[0,1,2]. Here, the risk severity of the items represent an array[] of N number of integer values. The task here is to sort the items based on their levels of risk in the array. The risk values range from 0 to 2.

Example :

Input :

7 -> Value of N

[1,0,2,0,1,0,2]-> Element of arr[0] to arr[N-1], while input each element is separated by new line.

Output :

0 0 0 1 1 2 2 -> Element after sorting based on risk severity

Example 2:

input : 10 -> Value of N

[2,1,0,2,1,0,0,1,2,0] -> Element of arr[0] to arr[N-1], while input each element is separated by a new line.

Output :

0 0 0 0 1 1 1 2 2 2 ->Elements after sorting based on risk severity.

Explanation:

In the above example, the input is an array of size N consisting of only 0’s, 1’s and 2s. The output is a sorted array from 0 to 2 based on risk severity.

solution:

#include<stdio.h>

void swap(int\* a, int\* b) {

int temp = \*a;

\*a = \*b;

\*b = temp;

}

void sortArray(int arr[], int size) {

int low = 0, mid = 0, high = size - 1;

while (mid <= high) {

if (arr[mid] == 0) {

swap(&arr[low], &arr[mid]);

low++;

mid++;

} else if (arr[mid] == 1) {

mid++;

} else {

swap(&arr[mid], &arr[high]);

high--;

}

}

}

int main() {

int n;

scanf("%d", &n);

int a[n];

for (int i = 0; i < n; i++) {

scanf("%d", &a[i]);

}

sortArray(a, n);

for (int i = 0; i < n; i++) {

printf("%d ", a[i]);

}

return 0;

}

Given an integer array Arr of size N the task is to find the count of elements whose value is greater than all of its prior elements.

Note : 1st element of the array should be considered in the count of the result.

For example,

Arr[]={7,4,8,2,9}

As 7 is the first element, it will consider in the result.

8 and 9 are also the elements that are greater than all of its previous elements.

Since total of 3 elements is present in the array that meets the condition.

Hence the output = 3.

Example 1:

Input

5 -> Value of N, represents size of Arr

7-> Value of Arr[0]

4 -> Value of Arr[1]

8-> Value of Arr[2]

2-> Value of Arr[3]

9-> Value of Arr[4]

Output :

3

Example 2:

5 -> Value of N, represents size of Arr

3 -> Value of Arr[0]

4 -> Value of Arr[1]

5 -> Value of Arr[2]

8 -> Value of Arr[3]

9 -> Value of Arr[4]

Output :

5

Constraints

1<=N<=20

1<=Arr[i]<=10000

solution:

#include<stdio.h>

#include<limits.h>

int main() {

int n, c = 0, a, m = INT\_MIN;

scanf("%d", &n);

while (n--) {

scanf("%d", &a);

if (a >= m) {

m = a;

c++;

}

}

printf("%d", c);

return 0;

}

A supermarket maintains a pricing format for all its products. A value N is printed on each product. When the scanner reads the value N on the item, the product of all the digits in the value N is the price of the item. The task here is to design the software such that given the code of any item N the product (multiplication) of all the digits of value should be computed(price).

Example 1:

Input :

5244 -> Value of N

Output :

160 -> Price

Explanation:

From the input above

Product of the digits 5,2,4,4

5\*2\*4\*4= 160

Hence, output is 160.

solution:

#include<stdio.h>

#include<limits.h>

int main() {

char s[100];

scanf("%s", s);

int p = 1;

for (int i = 0; i < strlen(s); i++) {

p \*= (s[i] - '0');

}

printf("%d", p);

return 0;

}

A furnishing company is manufacturing a new collection of curtains. The curtains are of two colors aqua(a) and black (b). The curtains color is represented as a string(str) consisting of a’s and b’s of length N. Then, they are packed (substring) into L number of curtains in each box. The box with the maximum number of ‘aqua’ (a) color curtains is labeled. The task here is to find the number of ‘aqua’ color curtains in the labeled box.

Note :

If ‘L’ is not a multiple of N, the remaining number of curtains should be considered as a substring too. In simple words, after dividing the curtains in sets of ‘L’, any curtains left will be another set(refer example 1)

Example 1:

Input :

bbbaaababa -> Value of str

3 -> Value of L

Output:

3 -> Maximum number of a’s

Explanation:

From the input given above.

Dividing the string into sets of 3 characters each

Set 1: {b,b,b}

Set 2: {a,a,a}

Set 3: {b,a,b}

Set 4: {a} -> leftover characters also as taken as another set

Among all the sets, Set 2 has more number of a’s. The number of a’s in set 2 is 3.

Hence, the output is 3.

Example 2:

Input :

abbbaabbb -> Value of str

5 -> Value of L

Output:

2 -> Maximum number of a’s

Explanation:

From the input given above,

Dividing the string into sets of 5 characters each.

Set 1: {a,b,b,b,b}

Set 2: {a,a,b,b,b}

Among both the sets, set 2 has more number of a’s. The number of a’s in set 2 is 2.

Hence, the output is 2.

Constraints:

1<=L<=10

1<=N<=50

The input format for testing

The candidate has to write the code to accept two inputs separated by a new line.

First input- Accept string that contains character a and b only

Second input- Accept value for N(Positive integer number)

The output format for testing

The output should be a positive integer number of print the message(if any) given in the problem statement.(Check the output in Example 1, Example 2).

solution:

#include<stdio.h>

#include<string.h>

int main() {

char str[100];

scanf("%s", str);

int n;

scanf("%d", &n);

int max = 0, count = 0;

for (int i = 0; i < strlen(str); i++) {

if (i % n == 0) {

if (count > max)

max = count;

count = 0;

}

if (str[i] == 'a')

count++;

}

if (count > max)

max = count;

printf("%d\n", max);

return 0;

}

An international round table conference will be held in india. Presidents from all over the world representing their respective countries will be attending the conference. The task is to find the possible number of ways(P) to make the N members sit around the circular table such that.

The president and prime minister of India will always sit next to each other.

Example 1:

Input :

4 -> Value of N(No. of members)

Output :

12 -> Possible ways of seating the members

Explanation:

2 members should always be next to each other.

So, 2 members can be in 2!ways

Rest of the members can be arranged in (4-1)! ways.(1 is subtracted because the previously selected two members will be considered as single members now).

So total possible ways 4 members can be seated around the circular table 2\*6= 12.

Hence, output is 12.

Example 2:

Input:

10 -> Value of N(No. of members)

Output :

725760 -> Possible ways of seating the members

Explanation:

2 members should always be next to each other.

So, 2 members can be in 2! ways

Rest of the members can be arranged in (10-1)! Ways. (1 is subtracted because the previously selected two members will be considered as a single member now).

So, total possible ways 10 members can be seated around a round table is

2\*362880 = 725760 ways.

Hence, output is 725760.

The input format for testing

The candidate has to write the code to accept one input

First input – Accept value of number of N(Positive integer number)

The output format for testing

The output should be a positive integer number or print the message(if any) given in the problem statement(Check the output in example 1, example2)

Constraints :

2<=N<=50

solution:

#include<stdio.h>

int main() {

int n;

scanf("%d", &n);

int fact[n + 1];

fact[0] = 1;

for (int i = 1; i <= n; i++) {

fact[i] = fact[i - 1] \* i;

}

printf("%d\n", fact[n - 1] \* 2);

return 0;

}

Problem Statement

An intelligence agency has received reports about some threats. The reports consist of numbers in a mysterious method. There is a number “N” and another number “R”. Those numbers are studied thoroughly and it is concluded that all digits of the number ‘N’ are summed up and this action is performed ‘R’ number of times. The resultant is also a single digit that is yet to be deciphered. The task here is to find the single-digit sum of the given number ‘N’ by repeating the action ‘R’ number of times.

If the value of ‘R’ is 0, print the output as ‘0’.

Example 1:

Input :

99 -> Value of N

3 -> Value of R

Output :

9 -> Possible ways to fill the cistern.

Explanation:

Here, the number N=99

Sum of the digits N: 9+9 = 18

Repeat step 2 ‘R’ times i.e. 3 tims (9+9)+(9+9)+(9+9) = 18+18+18 =54

Add digits of 54 as we need a single digit 5+4

Hence , the output is 9.

Example 2:

Input :

1234 -> Value of N

2 -> Value of R

Output :

2 -> Possible ways to fill the cistern

Explanation:

Here, the number N=1234

Sum of the digits of N: 1+2+3+4 =10

Repeat step 2 ‘R’ times i.e. 2 times (1+2+3+4)+(1+2+3+4)= 10+10=20

Add digits of 20 as we need a single digit. 2+0=2

Hence, the output is 2.

Constraints:

0<N<=1000

0<=R<=50

The Input format for testing

The candidate has to write the code to accept 2 input(s)

First input- Accept value for N (positive integer number)

Second input: Accept value for R(Positive integer number)

The output format for testing

The output should be a positive integer number or print the message (if any) given in the problem statement. (Check the output in Example 1, Example 2).

solution:

#include<stdio.h>

#include<string.h>

int main() {

char s[100];

scanf("%s", s);

int n, sum = 0;

scanf("%d", &n);

for (int i = 0; i < strlen(s); i++) {

sum += (s[i] - '0');

}

sum \*= n;

sprintf(s, "%d", sum);

while (strlen(s) > 1) {

sum = 0;

for (int i = 0; i < strlen(s); i++) {

sum += (s[i] - '0');

}

sprintf(s, "%d", sum);

}

printf("%s", s);

return 0;

}

solution:

Particulate matters are the biggest contributors to Delhi pollution. The main reason behind the increase in the concentration of PMs include vehicle emission by applying Odd Even concept for all types of vehicles. The vehicles with the odd last digit in the registration number will be allowed on roads on odd dates and those with even last digit will on even dates.

Given an integer array a[], contains the last digit of the registration number of N vehicles traveling on date D(a positive integer). The task is to calculate the total fine collected by the traffic police department from the vehicles violating the rules.

Note : For violating the rule, vehicles would be fined as X Rs.

Example 1:

Input :

4 -> Value of N

{5,2,3,7} -> a[], Elements a[0] to a[N-1], during input each element is separated by a new line

12 -> Value of D, i.e. date

200 -> Value of x i.e. fine

Output :

600 -> total fine collected

Explanation:

Date D=12 means , only an even number of vehicles are allowed.

Find will be collected from 5,3 and 7 with an amount of 200 each.

Hence, the output = 600.

Example 2:

Input :

5 -> Value of N

{2,5,1,6,8} -> a[], elements a[0] to a[N-1], during input each element is separated by new line

3 -> Value of D i.e. date

300 -> Value of X i.e. fine

Output :

900 -> total fine collected

Explanation:

Date D=3 means only odd number vehicles with are allowed.

Find will be collected from 2,6 and 8 with an amount of 300 each.

Hence, the output = 900

Constraints:

0<N<=100

1<=a[i]<=9

1<=D <=30

100<=x<=5000

The input format for testing

The candidate has to write the code to accept 4 input(s).

First input – Accept for N(Positive integer) values (a[]), where each value is separated by a new line.

Third input – Accept value for D(Positive integer)

Fourth input – Accept value for X(Positive integer )

The output format for testing

The output should be a positive integer number (Check the output in Example 1, Example e) if no fine is collected then print ”0”.

solution:

#include <stdio.h>

int main() {

int n;

scanf("%d", &n);

int arr[n];

for (int i = 0; i < n; i++)

scanf("%d", &arr[i]);

int d, x;

scanf("%d %d", &d, &x);

int countEven = 0, countOdd = 0;

for (int i = 0; i < n; i++) {

if (arr[i] % 2 == 0)

countEven++;

else

countOdd++;

}

if (d % 2 != 0) {

if (countEven == 0)

printf("0\n");

else

printf("%d\n", countEven \* x);

} else {

if (countOdd == 0)

printf("0\n");

else

printf("%d\n", countOdd \* x);

}

return 0;

}

**TCS NINJA TECHNICAL QUESTIONS:**

Mike has arranged a small party for the inauguration of his new startup. He has invited all of his fellow employees who are N in number. These employees are indexed with an array starting from 1 to N. In this startup, everyone knows each other’s salary. We will represent salary by an integer value. Mike has to arrange tables, where he will accommodate everyone. But he is a little thrifty in that, he wants to adjust everyone in as few tables as he can. Tables of various seating are available. Let’s say the cost of renting each table is K. All the employees have to seat in the order of the index. The only problem is that the employees with the same salary can get into arguments which can ruin the party.

Mike came across the term inefficiency of arrangement, which can be defined as the sum of the cost of tables + the total number of people getting into arguments. Given the number of employees, N, and their salaries in array a[ ], he wants to find the optimal inefficiency, i.e., the smallest possible value for the inefficiency of arranging the N employees.

Let’s understand it with an example.

Number of employees invited N = 5

A a = {5 1 3 3 3}

K = 1

Now let’s check all the combinations and how in-efficient is all of them.

When we make 1st, 2nd, and 3rd employee on table-1 and 4th and 5th on table-2

Cost of 2 tables = 2\*1

Number of people getting into arguments = 2 (two 3’s: 4th and 5th employee)

Total = 2 + 2 = 4

When we make 1st, 2nd, 3rd, and 4th employees on table-1 and 5th on table-2

Cost of 2 tables = 2\*1

Number of people getting into arguments = 2 (two 3’s: 4th and 5th employee)

Total = 2 + 2 = 4

When we make all of them sit at 1 table, then inefficiency will be

Cost of 1 table = 1

Number of people getting into arguments = 3 (all 3’s: 3rd, 4th and 5th employee)

Total = 1 + 3 = 4

When we make 1st, 2nd and 3rd employee on table-1 and 4th on table-2 and 5th on table-3

Cost of 3 tables = 3\*1

Number of people getting into arguments = 0 (all 3’s are. sitting at different tables)

Total = 3 + 0 = 3

Hence the optimal in-efficiency is 3.

So, the output will be 3.

Example 1:

Input:

5 1 -> Input Integer, N and K

{5, 1, 3, 3, 3) Input Integer, array elements a[i].

Output:

3 -> Output

Explanation:

Below is the seating for each case:

Case 1:

Table 1: 1st, 2nd, and 3rd

Table 2: 4th and 5th

Number of people getting into arguments: 2

Total in-efficiency: 2\*1 + 2 = 4

Case 2:

Table 1: 1st, 2nd, 3rd, and 4th

Table 2: 5th

Number of people getting into arguments: 2

Total in-efficiency: 2\*1 + 2 = 4

Case 3:

Table 1: 1st, 2nd, 3rd, 4th, and 5th

Number of people getting into arguments: 3

Total in-efficiency: 1\*1 + 3 = 4

Case 4:

Table 1: 1st, 2nd, and 3rd

Table 2: 4th

Table 3: 5th

Number of people getting into arguments: 0

Total in-efficiency: 3\*1 + 0 = 3

Choosing the minimum which is 3.

So, the answer is 3.

Example 2:

Input:

5 14 -> Input Integer, N and K.

{1, 4, 2, 4, 4} -> Input Integer, array elements a[i].

Output:

17 -> Output

Explanation:

Below is the seating for each case:

Case 1:

Table 1: 1st, 2nd, and 3rd

Table 2: 4th and 5th

Number of people getting into arguments: 2

Total in-efficiency: 2\*14 + 2 = 30

Case 2:

Table 1: 1st, 2nd, 3rd, and 4th

Table 2: 5th

Number of people getting into arguments: 2

Total in-efficiency: 2\*14 + 2 = 30

Case 3:

Table 1: 1st, 2nd, 3rd, 4th, and 5th

Number of people getting into arguments: 3

Total in-efficiency: 1\*14+3 = 17

Case 4:

Table 1: 1st, 2nd, and 3rd

Table 2: 4th

Table 3: 5th

Number of people getting into arguments: 3

Total in-efficiency: 3\*14+ 0 = 42

Chose the minimum which is 17.

So, the answer is 17.

solution:

#include <iostream>

#include <vector>

#include <algorithm>

#include <climits> // Added header for INT\_MAX

using namespace std;

int calculateInefficiency(const vector& salaries, int numTables, int tableCost) {

int inefficiency = 0;

int argumentsCount = 0;

for (int i = 0; i < numTables; i++) {

int tableArguments = 0;

vector&ltint&gt tableEmployees;

// Get the employees sitting at the current table

for (int j = i; j < salaries.size(); j += numTables) {

tableEmployees.push\_back(salaries[j]);

}

// Count the number of arguments at the current table

sort(tableEmployees.begin(), tableEmployees.end());

for (int j = 1; j < tableEmployees.size(); j++) {

if (tableEmployees[j] == tableEmployees[j - 1]) {

tableArguments++;

}

}

inefficiency += tableCost + tableArguments;

argumentsCount = max(argumentsCount, tableArguments);

}

inefficiency -= argumentsCount;

return inefficiency;

}

int findOptimalInefficiency(const vector& salaries, int numTables, int tableCost) {

int minInefficiency = INT\_MAX;

// Generate all possible combinations of tables

for (int i = 1; i <= numTables; i++) {

int inefficiency = calculateInefficiency(salaries, i, tableCost);

minInefficiency = min(minInefficiency, inefficiency);

}

return minInefficiency;

}

int main() {

int N, K;

cout << "Enter the number of employees: ";

cin >> N;

vector salaries(N);

cout << "Enter the salaries of employees: ";

for (int i = 0; i < N; i++) {

cin >> salaries[i];

}

cout << "Enter the cost of renting each table: ";

cin >> K;

int optimalInefficiency = findOptimalInefficiency(salaries, N, K);

cout << "The optimal inefficiency is: " << optimalInefficiency << endl;

return 0;

}

TCS Coding Question Day 1 Slot 1 – Question 2

Jack and Jill are playing a string game. Jack has given Jill two strings A and B. Jill has to derive a string C from A, by deleting elements from string A, such that string C does not contain any element of string B. Jill needs help to do this task. She wants a program to do this as she is lazy. Given strings A and B as input, give string C as Output.

Example 1:

Input:

tiger -> input string A

ti -> input string B

Output:

ger -> Output string C

Explanation:

After removing “t” and “i” from “tiger”, we are left with “ger”.

So, the answer is “ger”.

Example 2:

Input:

processed -> input string A

esd -> input string B

Output:

proc -> Output string C

Explanation:

After removing “e” “s” and “d” from “processed”, we are left with “proc”.

So, the answer is “proc”.

Example 3:

Input:

talent -> input string A

tens -> input string B

Output:

al -> Output string C

Explanation:

After removing “t” “e” and “n” from “talent”, we are left with “al”.

So, the answer is “al”.

solution:

#include <iostream>

#include <vector>

std::string deriveStringC(const std::string& A, const std::string& B) {

std::string result;

for (char c : A) {

if (B.find(c) == std::string::npos) {

result += c;

}

}

return result;

}

int main() {

std::string A, B;

std::cout << "Enter string A: ";

std::getline(std::cin, A);

std::cout << "Enter string B: ";

std::getline(std::cin, B);

std::string C = deriveStringC(A, B);

std::cout << "Output string C: " << C << std::endl;

return 0;

}

TCS Coding Question Day 1 Slot 2 – Question 1

Mahesh and Suresh are playing a new game “Checkers“. This is a very simple game but becomes challenging when more expert players are playing. Below is the description of the game and rules: The game is played by 2 players. This game consists of an N\*M matrix. Each of the cells is background lit by lights. And these cells are either Green or Black. The green and black cells are randomly lit and will be represented with 1’s and 0’s respectively. Green cells are the cells that need to be captured. Black cells cannot be captured. Everyone is in the race to capture the maximum number of cells possible.

In a single chance, a player can capture all those adjacent cells which share an edge. Once there is no adjacent edge the chance breaks and the next player will play.

Mahesh always starts the game and Suresh is second.

Both players are playing optimally, find out how many cells Suresh captures.

Input:

N and M, size of the matrix

A[i][j] for all 1<=i<=N and 1<=j<=M

Let us try to understand it with an example

Consider the matrix below

N = 4

M = 4

A = 1001

0110

0110

1001

If Mahesh plays first, he will try to capture most of the 1’s, he will capture A[2][2], A[2][3], A[3][2], and A[3][3]. Now there are no adjacent cells left. So, the chance will be given to Suresh. Now Suresh’s turn. He can capture either A[1][1] or A[4][1] or A[4][7] or A[4][4]. He will capture any one cell, and as there is no adjacent deft, the chance will now be given to Mahesh. The game proceeds and then again Suresh’s turn will come, and he will again be able to choose only 1 cell finally Mahesh will end the game by choosing the final cell.

Like this Mahesh has captured 6 cells and Suresh has captured only 2 cells.

Hence 2 is the answer.

Example 1:

Input:

2 2 -> Input integer, N, M

1 1 -> Input integer, A[i]

1 1 -> Input integer, A[N]

Output:

0 -> Output

Explanation:

In the above scenario, it is very clear that if Mahesh plays first, he will capture all the cells as all the cells are adjacent to each other.

There will be nothing left for Suresh. Hence the cells captured by Suresh will be 0.

Hence the answer is 0.

Example 2:

Input:

4 4 -> Input integer, N, M

1001 -> Input integer, A[i]

0110 -> Input integer, A[i+1]

0110 -> Input integer, A[i+2]

1001 -> Input integer, A[N]

Output:

2 -> Output

Explanation:

If Mahesh plays first, he will try to cover most of the 1’s, he will cover A[2][2], A[2][3], A[3][2], and A[3][3]. Now there are no adjacent cells left. So, the chance will be given to Suresh. Now Suresh’s turn. He can capture either of A[1][1] or A[4][1] or A[4][1] or A[4][4]. He will capture any one cell, and as there is no adjacent left, the chance will now be given to Mahesh. The game proceeds and then again Suresh’s turn will come, and he will again be able to choose only 1 cell, and finally, Mahesh will end the game by choosing the final cell.

Like this Mahesh has captured 6 cells and Suresh has captured only 2 cells.

Hence 2 is the answer.

solution:

#include<bits/stdc++.h>

using namespace std;

int main()

{

int n,m;

cin >> n >> m;

int a[n][m];

int count = 0;

for(int i = 0; i < n; i++)

{

for(int j = 0; j < m; j++) { cin >> a[i][j];

}

}

for(int i = 0; i < n; i++){

for(int j = 0; j < m; j++){

if(a[i][j] == a[i+1][j])

continue;

else

{

if(a[i+1][j] == 1 && (a[i+2][j] == 1))

count++;

}

}

}

cout << count << "\n";

return 0;

}

TCS Coding Question Day 1 Slot 2 – Question 2

Joe was reading an interesting novel when all of a sudden, his 5-year-old son came to him and started asking a few questions about functions. He tried making him understand various functions, but his son didn’t get find it interesting. Then he created his function Absent number function A(S) According to this function, there is always the smallest positive integer number in a sequence that is not available. In simple words, if you sort the given sequence, then the smallest integer number (other than 0) which is not present in the sequence is the Absent number. Consider a sequence S= [1, 2, 3], then B(S)=4. The minimum value greater than 0 which is not present here in the sequence is 4. Now his son found it interesting, so Joe extended this logic to sub-sequence. If there is a given sequence S, you have to find the Absent Number for each sub-sequence and then sum it up. If the answer is large, print the result modulo, 109 +7.

Let say there exist a sequence with N = 3, and sequence S = [1, 2, 1]

Below are the various sub-sequences of it,

It will be 2N:

[ ] : B([ ]) = 1

[1] : B([1]) = 2

[2] : B([2]) = 1

[1] : B([1]) = 2

[1, 2] : B([1, 2]) = 3

[2, 1] : B([2, 1]) = 3

[1, 1] : B([1, 1]) = 2

[1, 2, 1] : B([1, 2, 1]) = 3

Total sum of all B(S) = 1+2+1+2+3+3+2+3 = 17.

Hence the answer is 17.

Example 1:

Input:

2 -> input Integer, N

1 1 -> input Integer, S

Output:

7 -> Output

Explanation:

In the above scenario below are the various sub-sequence and their respective functions of it:

[ ] : B(l) = 1

[1]: B([1])= 2

[1]: B([1]) = 2

[1,1]: B([1,1]) = 2

Total sum of all B(S) = 1+2+2+2 = 7 Hence the answer is 7.

Example 2:

Input:

3 -> Input integer, N

1 2 1 -> Input integer, S

Output:

17->Output

Explanation:

In the above scenario below are the various sub-sequences and their respective functions of it.

[ ] : B([ ]) = 1

[1] : B([1]) = 2

[2] : B([2]) =1

[1] : B([1]) = 2

[1, 2] : B([1, 2]) = 3

[2, 1] : B([2, 1]) = 3

[1, 1] : B([1, 1]) = 2

[1, 2, 1] : B([1, 2, 1]) = 3

Total sum of all B(S) = 1 + 2 + 1 + 2 + 3 + 3 + 2 + 3 = 17.

Hence the answer is 17.

solution:

#include <iostream>

#include <vector>

#include <algorithm>

using namespace std;

const int MOD = 1e9 + 7;

int absentNumber(const vector& subsequence) {

vector sortedSubsequence = subsequence;

sort(sortedSubsequence.begin(), sortedSubsequence.end());

int missing = 1;

for (int num : sortedSubsequence) {

if (num == missing) {

missing++;

}

}

return missing;

}

int sumOfAbsentNumbers(const vector& sequence) {

int n = sequence.size();

int sum = 0;

for (int i = 0; i < (1 << n); i++) {

vector subsequence;

for (int j = 0; j < n; j++) {

if ((i & (1 << j)) != 0) {

subsequence.push\_back(sequence[j]);

}

}

sum = (sum + absentNumber(subsequence)) % MOD;

}

return sum;

}

int main() {

int N;

cout << "Enter the size of the sequence (N): ";

cin >> N;

vector<int> sequence(N);

cout << "Enter the sequence elements: ";

for (int i = 0; i < N; i++) {

cin >> sequence[i];

}

int sum = sumOfAbsentNumbers(sequence);

cout << "The sum of all Absent Numbers: " << sum << endl;

return 0;

}

TCS Coding Question Day 2 Slot 1 – Question 1

James has a sequence of N numbers. There is also an integer X which is a random number from other sources. He is allowed to perform a specific operation on this sequence X number of times. Below is the operation:

Pick exactly one element from the sequence and multiply it with -1.

Your task is to find out the number of different sequences which can be formed by performing the above operation. If the answer is large, print the result modulo 109 +7.

Let us try to understand it with an example,

N = 3

X = 2

S = [1, 2, 3]

There are 2 ways in which this operation can be performed.

Way 1: Either -1 should be multiplied to the same element 2 times, OR

Way 2: -1. Should be multiplied by two different elements once each.

Way 1:

If we multiply -1, to each element 2 times. It will become +1 (-1 \*-1).

We will get the same sequence for each element:

Multiply -1, 2 times to S[1] : [1, 2, 3].

Multiply -1, 2 times to S[2] : [1, 2, 3].

Multiply -1, 2 times to S[3] : [1, 2, 3].

So, the unique sequence is just 1 which is [1, 2, 3].

Way 2:

If we multiply -1, by two different elements just 1 time each. We get:

Multiply -1 to S[1] & S[2] : [-1, -2, 3].

Multiply -1 to S[2] & S[3] : [1, -2, -3].

Multiply -1 to S[1] & S[3] : [-1, 2, -3].

Hence, we get a total of 3 different sequences from Way 2.

Total 1 + 3 = 4 different sequences.

Hence the answer is 4.000

Example 1:

Input:

3 1 -> Input integer, N, X

{1, 2, 1} -> Input integer, S

Output:

3 -> Output

Explanation:

In the given scenario, we have X =1. Hence, we can have this multiplication of -1 only once.

So, if we multiply -1, by different elements just 1 time. We get:

Multiply -1 to S[1] & S[2] : [-1, -2, 1].

Multiply -1 to S[2] & S[3] : [1, -2, -1].

Multiply -1 to S[1] & S[3] : [-1, 2, -1].

Hence, we get a total of 3 different sequences.

So, the answer is 3.

Example 2:

Input:

3 2 -> Input integer, N, X

{1, 2, 3} -> Input integer, S

Output:

4 -> Output

Explanation:

There are 2 ways in which this operation can be performed

Way 1: Either – 1 should be multiplied to the same element 2 times, OR

Way 2: -1 should be multiplied by different elements once.

As shown in the above Demo example, there will be a total of 4 different sequences which can be achieved from this.

Hence the answer is 4.

solution:

#include<bits/stdc++.h>

using namespace std;

int ct(int a[], int n)

{

unordered\_set s;

int res = 0;

for (int i = 0; i < n; i++)

{

if (s.find(a[i]) == s.end())

{

s.insert(a[i]);

res++;

}

}

return res;

}

int factorial(int n)

{

if(n == 0)

return 1;

int factorial = 1;

for (int i = 2; i <= n; i++) factorial = factorial \* i; return factorial; } int total\_combination(int n, int x) { return factorial(n) / (factorial(x) \* factorial(n - x)); } int main() { int n, x, ans, cnt = 0; cin >> n >> x;

int a[n];

for(int i =0 ; i < n; i++) { cin >> a[i];

}

int k = ct(a,n);

if(x%2 == 0)

{

ans = 1;

ans += total\_combination(k,x);

}

else

{

ans = k-1;

ans += total\_combination(k,x);

}

cout << ans << "\n";

return 0;

}

TCS Coding Question Day 2 Slot 1 – Question 2

Two parallel roads separated by a river are connected from cities A and B to an outer ring road. Both roads have a high flow of traffic throughout the day. People who want to travel from city A to city B or vice versa have to pass through the ring road which is a huge waste of time and money. To ease the traffic and also to make it convenient for commuters to travel from city A to city B and vice versa, the construction of a bridge over the river is planned.

The surveillance team submitted a report stating the bridge should be constructed in the following manner:

The ground or soil is stronger at certain points on the road favorable for the construction of the bridge.

The strong ground positions are given from the starting point of each road. Say, the road of city A has strong ground at 1,4 meaning there is a strong ground at a distance of 1 unit, another strong ground point at a distance of 4 units from the starting point of the road of city A.

Collate the strong ground positions of both roads. Sort them in ascending order. Calculate the middle point or median of the combined strong ground positions. The bridge should be constructed from road A as per the middle point calculated. Given the number of strong positions on roads A and B(N1 and N2 respectively) and the strong ground positions on each road, the task here is to calculate the midpoint of the combined strong positions on both roads.

NOTE: When the strong positions are combined, the repeated positions on the different roads are dropped.

Example 1:

Input:

3 -> Value of N1

3 -> Value of N2

{3,5,2} -> a[ ], Elements a[0]to a[N1-1], where each input element is separated by new line

{1,2,3} -> b[ ], Elements b[0]to b[N2-1), where each input element is separated by new line

Output: 2.5

Explanation:

From the inputs given above:

Number of strong ground positions on road A:3

Number of strong ground positions on road B:3

The positions of strong ground from the starting point of road A are at a distance of 3,5,2

The positions of strong ground from the starting point of road B are at a distance of 1,2,3

Combining the strong ground positions of both the roads and sorting them in ascending order

1, 2, 3, 5

The Middle points are 2 and 3

2+3 = 5

5/2 = 2.5

So, the middle point from where the bridge should be constructed is 2.5.

Hence, the output is 2.5

Example 2:

Input:

2 -> Value of N1

3 -> Value of N2

{2,3} -> all, Elements a[O]to a[N1-1), where each input element is separated by new line

{5,6,4} -> b[ ], Elements b[O]to b[N2-1], where each input element is separated by new line

Output: 4

Explanation:

From the inputs given above:

Number of strong ground positions on road A: 2

Number of strong ground positions on road B: 3

The positions of strong ground from the starting point of road A are at a distance of 2, 3 The positions of strong ground from the starting point of road B are at a distance of 5, 6, and 4 Combining the strong ground positions of both the roads and sorting them in ascending order: 2, 3, 4, 5, 6 > Middle point is 4

So, the middle point from where the bridge should be constructed is 4.

Hence, the output is 4.

solution:

#include

#include

#include

using namespace std;

int main() {

int N1, N2;

cin >> N1 >> N2;

vector arr1(N1), arr2(N2);

for (int i = 0; i < N1; i++) {

cin >> arr1[i];

}

for (int i = 0; i < N2; i++) {

cin >> arr2[i];

}

vector combined;

combined.insert(combined.end(), arr1.begin(), arr1.end());

combined.insert(combined.end(), arr2.begin(), arr2.end());

sort(combined.begin(), combined.end());

double midpoint;

int size = combined.size();

if (size % 2 == 0) {

midpoint = (combined[size/2 - 1] + combined[size/2]) / 2.0;

} else {

midpoint = combined[size/2];

}

cout << midpoint << endl;

return 0;

}

TCS Coding Question Day 2 Slot 2 – Question 1

A chocolate factory is packing chocolates into packets. The chocolate packets here represent an array arrt of N number of integer values. The task is to find the empty packets(0) of chocolate and push it to the end of the conveyor belt(array).

For Example:

N=7 and arr = [4,5,0,1.9,0,5,0].

There are 3 empty packets in the given set. These 3 empty packets represented as O should be pushed towards the end of the array

Example 1:

Input:

7 – Value of N

[4,5,0,1,0,0,5] – Element of arr[O] to arr[N-1],While input each element is separated by newline

Output:

4 5 1 9 5 0 0

Example 2:

Input:

6

— Value of N.

[6,0,1,8,0,2] – Element of arr[0] to arr[N-1], While input each element is separated by newline

Output:

6 1 8 2 0 0

solution:

#include <bits/stdc++.h>

using namespace std;

int main()

{

int n,j=0; cin>>n;

int a[n]={0};

for(int i=0;i<n;i++)

{

cin>>a[j];

if(a[j]!=0) j++;

}

for(int i=0;i<n;i++) cout<<a[i]<<" ";

}

TCS Coding Question Day 2 Slot 2 – Question 2

Joseph is learning digital logic subject which will be for his next semester. He usually tries to solve unit assignment problems before the lecture. Today he got one tricky question. The problem statement is “A positive integer has been given as an input. Convert decimal value to binary representation. Toggle all bits of it after the most significant bit including the most significant bit. Print the positive integer value after toggling all bits”.

Constraints :

1<=N<=100

Example 1:

Input :

10 -> Integer

Output :

5 -> result- Integer

Explanation:

Binary representation of 10 is 1010. After toggling the bits(1010), will get 0101 which represents “5”. Hence output will print “5”.

solution:

#include <bits/stdc++.h>

using namespace std;

int main()

{

int n; cin>>n;

int k=(1<<(int)floor(log2(n))+1)-1;

cout<<(n^k);

}

TCS Coding Question Day 3 Slot 1 – Question 1

Airport security officials confiscated several items of the passengers at the security checkpoint. All the items have been dumped into a huge box (array). Each item possesses a certain amount of risk[0,1,2]. Here, the risk severity of the items represents an array[] of N number of integer values. The task here is to sort the items based on their levels of risk in the array. The risk values range from 0 to 2.

Example :

Input :

7 -> Value of N

[1,0,2,0,1,0,2]-> Element of arr[0] to arr[N-1], while input each element is separated by new line.

Output :

0 0 0 1 1 2 2 -> Element after sorting based on risk severity

Example 2:

input : 10 -> Value of N

[2,1,0,2,1,0,0,1,2,0] -> Element of arr[0] to arr[N-1], while input each element is separated by a new line.

Output :

0 0 0 0 1 1 1 2 2 2 ->Elements after sorting based on risk severity.

Explanation:

In the above example, the input is an array of size N consisting of only 0’s, 1’s, and 2s. The output is a sorted array from 0 to 2 based on risk severity.

solution:

#include <iostream>

#include <vector>

using namespace std;

void sortArrayByRisk(vector<int>& arr) {

int n = arr.size();

// Count the frequency of each risk severity level

vector frequency(3, 0);

for (int i = 0; i < n; i++) {

frequency[arr[i]]++;

}

// Sort the array based on risk severity levels

int index = 0;

for (int i = 0; i < 3; i++) {

while (frequency[i] > 0) {

arr[index] = i;

index++;

frequency[i]--;

}

}

}

int main() {

int n;

cin >> n;

vector<int> arr(n);

for (int i = 0; i < n; i++) {

cin >> arr[i];

}

// Sort the array based on risk severity levels

sortArrayByRisk(arr);

// Print the sorted array

for (int i = 0; i < n; i++) {

cout << arr[i] << " ";

}

cout << endl;

return 0;

}

TCS Coding Question Day 3 Slot 1 – Question 2

Given N gold wires, each wire has a length associated with it. At a time, only two adjacent small wires are assembled at the end of a large wire and the cost of forming is the sum of their length. Find the minimum cost when all wires are assembled to form a single wire.

For Example:

Suppose, Arr[]={7,6,8,6,1,1,}

{7,6,8,6,1,1}-{7,6,8,6,2} , cost =2

{7,6,8,6,2}- {7,6,8,8}, cost = 8

{7,6,8,8} – {13,8,8}, cost=13

{13,8,8} -{13,16}, cost=16

{13, 16} – {29}, cost =29

2+8+13+16+29=68

Hence , the minimum cost to assemble all gold wires is 68.

Constraints

1<=N<=30

1<= Arr[i]<=100

Example 1:

Input

6 -> Value of N, represent size of Arr

7 -> Value of Arr[0], represent length of 1st wire

6 -> Value of Arr[1], represent length of 2nd wire

8 -> Value of Arr[2] , represent length of 3rd wire

6 -> Value of Arr[3], represent length of 4th wire

1 -> Value of Arr[4], represent length of 5th wire

1 -> Value of Arr[5], represent length of 6th wire

Output :

68

Example 2:

Input

4 -> Value of N, represents size of Arr

12 -> Value of Arr[0], represents length of 1st wire

2 -> Value of Arr[1], represent length of 2nd wire

2 -> Value of Arr[2], represent length of 3rd wire

5 -> Value of Arr[3], represent length of 4th wire

Output :

34

solution:

#include <iostream>

#include <vector>

#include <climits>

using namespace std;

int minimumCost(vector<int>& arr) {

int n = arr.size();

vector<vector<int>> dp(n, vector<int>(n, 0));

// Iterate over different lengths of wires

for (int len = 2; len <= n; len++) {

for (int i = 0; i <= n - len; i++) {

int j = i + len - 1;

dp[i][j] = INT\_MAX;

// Try different partition points between i and j

for (int k = i; k < j; k++) {

int cost = dp[i][k] + dp[k + 1][j] + arr[i] + arr[k + 1];

dp[i][j] = min(dp[i][j], cost);

}

}

}

return dp[0][n - 1];

}

int main() {

int n;

cin >> n;

vector<int> arr(n);

for (int i = 0; i < n; i++) {

cin >> arr[i];

}

// Find the minimum cost to assemble all gold wires

int minCost = minimumCost(arr);

// Print the minimum cost

cout << minCost << endl;

return 0;

}

TCS Coding Question Day 3 Slot 2 – Question 1

Given an array Arr[] of size T, contains binary digits, where

0 represents a biker running to the north.

1 represents a biker running to the south.

The task is to count crossing biker in such a way that each pair of crossing biker(N, S), where 0<=N<S<T, is passing when N is running to the north and S is running to the south.

Constraints:

0<=N<S<T

Example 1:

Input :

5 -> Number of elements i.e. T

0 -> Value of 1st element.

1 -> Value of 2nd element

0 -> Value of 3rd element.

1 -> Value of 4th element.

1 -> Value of 5th element

Output :

5

Explanation:

The 5 pairs are (Arr[0], Arr[1]), (Arr[0], Arr[3]), (Arr[0], Arr[4]), (Arr[2],Arr[3]) and (Arr[2], Arr[4]).

solution:

#include <bits/stdc++.h>

using namespace std;

int main ()

{

int n, a, sum = 0, c = 0;

cin >> n;

for (int i = 0; i < n; i++){

cin >> a;

if (a)

sum += c;

else

c++;

}

cout << sum;

}

**CAPGEMINI TECHNICAL MCQ QUESTIONS**

1) Suppose a queue is implemented using a linked list and its front node and rear nodes are tracked by two tracked by two reference variables. which of these reference variable will change into a NONEMPTY queue?

A. Both will change

B. Only the rear will change

C. Only the front will change

D. None of them will change

2) How much time will be required to generate all the connected components in an undirected graph G with “n” vertices and “e” edges when the graph is represented by adjacency list?

A. O(e)

B. O(e+n)

C. O(n)

D. O(e)

3) Let A,B,C,D,E be sorted sequences having lengths 20,24,30,35,50 respectively, they are to be merged into a single sequence by merging together two sequences at a time. How many comparisons are needed in the worst case by the optimal algorithm?

A. 423

B. 358

C. 544

D. 256

4) If a node having two children is deleted from a binary tree, it is replaced by its;

A. Inorder successor

B. Inorder predecessor

C. Preorder predecessor

D. None of the mentioned options

5) With the following details given about a binary tree, find out the maximum number of nodes in the given tree. Height of a binary tree = 5

Nods at level 1= 4

A. 65

B. 59

C. 63

D. 62

6) Which data structure is used while transforming in fix expressions to postfix expressions?

A. stack

B. Graph

C. Tree

D. Queue

7) Consider an array A with 5 elements ;

A={2,8,5,6,1}

Person X wants to sort the array in ascending order, for which he is using bubble sort. How will the array the array look like three passes?

A. 21568

B. 12568

C. None of the mentioned options

8) Consider the following arithmetic expression written in infix notation:

A + (B\*C)

Find the postfix expression of the above expression.

A. A B C +\*

B. \* + A B C

C. A B C \* +

D. None of the mentioned options

9) Which of the following sorting techniques uses a priority queue?

A. None of the mentioned options

B. Heap sort

C. Bubble sort

D. Insertion sort

10) Consider the statements given below

1. In X data structure, the items are popped in the same order in which they are pushed

2. In Y data structure, the items are popped in the opposite of the order in which they were pushed.

Identify X and Y.

A.X-Heap, Y Priority Queue

B. X-Queue, Y- Stack

C.X-Stack, Y-Queue

D X-Array, Y Linked list.

11) Alex was explaining a data structure, X to his students. To explain X, he asked the students to consider a scenario in which there is a straight line of people in front of a billing counter where the person that came first is served first. What is the data structure X being taught by Alex?

A. Heap

B Linked List

C. Queue

D. Stack

12) A stack is implemented using an array arr = {1, 2, 1, 2, 3). What would be the order of popped elements, if it is given that the last element of the array is inserted first in the stack?

A. 3 2 1 3 2

B. 1 2 1 2 3

C.3 2 1 2 1

D. 1 2 3 1 2

13) Consider an array representation of non circular queue, Q= {1,2,3,4,}. The following operations are performed on Q

1. Enqueue(Q, 4)

2. Enqueue(Q, 5)

3. Enqueue(Q, 6)

After the above operations have been performed, dequeue operation is performed n times such that the number of elements is same. What will be the sum of all elements present in the resultant queue?

A.17

B. 19

C 18

D. 20

14) Consider an array of integers A (1,2,3). The following operations are performed on the array.

1) 3 is appended.

2) Last element is deleted.

3) 2 is appended.

4) Last element is deleted.

5) 1 is appended.

Calculate the value of A [ 2]+A[2] after all the operations have been performed.

A. 10

B. 6

C. 5

D. 4

15) Which class of sorting algorithms can handle massive amounts of data?

A. Big O sorting

B. External sorting

C. None of the mentioned options

D. Internal sorting

16) Consider an array of integers A= {1,2,3). The following operations are performed on the army.

1) 3 is appended.

2) Last element is deleted.

3) 2 is appended.

4) Last element is deleted.

5) 1 is appended.

Calculate the value of A [-2]+A[2] after all the operations have been performed

A. 2

B. 5

C.6

D.3

17)What will be the output of the following pseudocode?

1. Integer p, q, r

2. Set p = 1, q = 8, r = 6

3. if (8<p OR q<p)

4. r = (p + 1) + p

5. q = (q + 10) + q

6. End if

7. Print p + q + r

A.13

B.26

C. 22

D. 15

18) Consider an array of integers A-(1,2,3). The following operations are performed

1) 3 is appended

2) 2 is appended.

3) 1 is appended.

Calculate the value of A[-2]+A[2] after all the operations have been performed.

A. 6

B. 7

C. 4

D. 5

19) Consider the following sorting techniques

1. Radix Sort

2. Quick sort

Which of the above sorting techniques use(s) hardware cache

A.2 only

B. Both 1 and 2

C. None of the mentioned options

D. 1 only

20) Fill in the blank with suitable option

When all data is placed in memory, then sorting is called ………sorting

A External

B. Internal

C. Bucket

D. In place

21) what will be the output of the pseudocode?

1. Integer a, b, c

2. Set a = 1, b = 6, c = 5

3. c = 2 + b

4. a = b + c

5. b = (a + c) + b

6. Print a + b + c

A.58

B. 51

C.48

D.50

22) Consider the following types of queues

1. Deque 4

2. Priority queue

3. Circular queue

Which of the above queues is also called ring buffer?

A 2

B.1

C.3

D. None of the mentioned options.

23) What will be the output of the following pseudocode?

1. Integer a, b, c

2.set a-7,b-4,c-8

3.if((a+b) > (c- a))

4.c=a

5. End if

6.Print a + b + c

A.9

B.18

C.21

D. 29

24) What will be the output of the following pseudocode?

1. Integer p, q, r

2. Set p = 4, q = 6, r = 8

3. q = 3 + q

4. for(each r from 4 to 5)

5. p = 6 + p

6. q = (q + q) + p

7. End for

8. Print p + q

A. 88

B.97

C.102

D.70

25) Consider a stack of integers. The stack is allocated 30 memory cells. It is given that stack overflow occurs at the 7th push operation occupied memory cells, before the push operations were performed?

A. 25

B. Cannot be determined

C. 24

D.23

26) What will be the output of the following pseudocode?

1. Integer a

2. String str1

3. Set str1 , "goose"

4. a = stringLength(strl)

5. Print a

[Note- stringLength(): stringLength( ) function counts the number of characters in a given string and returns the integer value.]

A. 11

B. 5

C. 4

D. 10

27) what will be the output?

Integer a, b, c

Set b = 5, a = c =2

B= (a & c) & (12)

Print a+b+c

[Note:- &: bitwise AND - The bitwise AND operator (&) compares each bit of the first operand to the corresponding bit of the NUM 1, the corresponding result bit is set to 1. Otherwise, the corresponding result bit is set to 01

A. 10

B. 0

C. 4

D. 42

28) What will be the output of the following pseudocode ?

1. Integer a, b, c

2. Set b = 5, a = c =2

3. if (b > a & a > c && c > b)

4. b = a + 1

5. Else

6. a = b +c

7. End

A. 5

B. 7

C. 3

D. 2

29) Which of the following is a valid array?

A. {2, 3.33, 4, 5}

B. {2, 3, 4, 5}

C. {2, 3, 4, 5888}

D. Both {2, 3, 4, 5} and {2, 3, 4, 5888}

30) Multiprocessor scheduling can be done by using which of the following type of data structure?

1. Queue

2. DEQUE

3. Circular Queue

Choose the correct answer from the options given below.

A. Only 1 and 3

B. Only 1

C. Only 3

D. Only 2

31) Which of the following options is a max heap?

A. 10, 4, 16, 2, 8, 12, 20

B. 20, 16, 12, 8, 10, 2, 4

C. 20, 16, 12, 8, NULL, 10, 4, 2, NULL, NULL, NULL

D. 20, 10, 12, 0, 10, 2, 25

32) What is the time complexity of linear and binary search respectively ?

A. O(logn) and O(logn)

B. O(n) and O(logn)

C. O(n) and O(n)

D. O(n\*n) and O(n)

33) Fill in the blanks with suitable options

The time and space complexity of jump search is \_\_ and \_\_\_ respectively

1. O(root(n)) and O(n)

2. O(root(n)) and O(1)

3. (root(a)) and O(n\*n)

4. (root(log(n))) and 0(1)

34)Consider the following searching algorithms

1.Binary search

2. Exponential binary search

Which of the above searching technique can be used to perform unbounded searches?

1.Both I and 2

2.Only 2

3.Neither 1 nor 2

4.Only 1

35) Henry wants to search an element in the array using jump search (It is given that n is the number of elements)

1.n

2. cube root(n)

3. n/2

4. sqrt (n)

36) Consider the following keys:

11, 12, 17, 14, 18, 15

What will be pre-order traversal of the BST created using the above keys? (It is given that keys are inserted in the sequence given)

A.11 15 17 14 12 18

B.11 14 17 12 15 18

C.11 12 17 14 15 18

D.11 17 12 14 15 18

37) What will be the output of the following pseudocode?

1. Integer p, q, r

2. Set p = 4, q = 5, r=9

3. if((q + p + r) < (r + q))

4. r = (8 + 5) & q

5. p = (r+q) & q

6. End if

7. Print p + q + r

[Note- &: bitwise AND-The bitwise AND operator (&) compares each bit of the first operand to the corresponding bit of the second operand. If both bits are 1, the corresponding result bit is set to 1. Otherwise, the corresponding result bit is set to 0.]

A. 20

B. 18

C. 15

D.29

38) James is using heap sort to sort an array in increasing order. What is the overall time complexity of the sorting

A. O(log n)

B. O(n\*n)

C. O(n)

D. O(n log n)

39)Consider the following searching algorithms

1. Binary search

2. Fibonacci search

Which of the above searching technique divides the array into unequal parts?

A. Both 1 and 2

B. Only 1

C. Only 2

40) What will be the output of the following pseudocode?

1. Integer a, b, c

2. Set a = 0, b = 8, c = 10

3. for(each c from 3 to 6)

4.a=c+a

5. End for

6. c = (a + c) + c

7. Print a + b

A.21

B.36

C.48

41) What will be the output of the following pseudocode?

1. Integer a, b, c

2. Set a = 5, b = 5, c = 9

3. b = (a + 11) + C

4. for (each c from 2 to 4)

5. b = b+c

6. a = 8+ a

7. End for

8. Print a + b

A. 56

B. 67

C.63

D.81

42) What will be the output of the following pseudocode?

Declare arr[5]

Set arr[]={ 4,5,7,2,6}

For i= 0 to 4

For j = 0 to 3

Declare t

if(arr[j]<arr[j+1])

t=arr[j]

arr[j]=arr[j+1]

arr[j+1]=t

end if

end For

End For

For k = 0 to 4

Print arr[K]

End For

**A.7 6 5 4 2**

B.5 4 6 2 7

C.5 4 7 6 2

D.2 4 5 6 7

43) What will be the output of the following pseudocode ?

Char str[20]

Integer s

Set str = “PQRSTUVWXYZ”

s= string \_ length(str)

str [4]=NULL

s= strlen (str)

Print s

A. 2

B. 3

C. 4

D. None of the above

44) What is the value of c ?

Char text = “TESTSTRING”

Integer a,c

Char ch = ‘T’

c=0

For (each a from 0 to length of text)

if(text[a] ==ch)

c=c+1

end if

End for

if(c>0)

Print c

Else

Print 0

End if

A.6

B.1

**C.3**

D.10

45) What will be the output of the following pseudocode?

Let Ib be the lower bound and ub be the upper bound of the array

[Initialize counter] set k at lower bound Ib

repeat for k=Ib to ub

Print a[k]

[End of the loop]

Exit

A. Inserting element in an array

B. Deleting an element from an array

C. sorting an array

**D. traversing of array**

46) What will be the output of the following pseudocode?

Integer num[]={1,4,8,12,16}

Integer \*a, \*b

Integer i

Set a =num

Set b = num+2

i=\*a++

Print I \*a \*b

A. 2 1 8

**B.1 4 8**

C.4 4 8

D.2 4 8

47) Which of the following formula will correctly calculate the memory address of the third element in the array

( w is the number of word per memory cell for the array)

A .loc(Array[3])=base(Array[3]+3-lower bound)

**B .Information is not adequate to solve the given problem**

C .loc(Array [3])=base(Array)+w(3-lower bound)

D .loc(Array[3])=base(Array[4])+(3-upper bound)

48) integer a = 60, b = 35, c = -30

What will be the output of the following two statements:

print ( a > 45 OR b > 50 AND c > 10 )

print ( ( a > 45 OR b > 50 ) AND c > 10 )

A. **1 and 0**

B. 0 and 0

C. 1 and 1

D.0 and 1

49) Below is a pseudo code

Set x to 1;

Set x1 to 0;

Set x2 to 0;

Set x3 to 1;

While(x<10)

Set x1=x1+x2+x3;

Set x2=x2+x1+x3;

Set x3=x3+x2+x1;

Write x1;

Write x2;

Write x3;

X=x+1;

In which series is the output?

A. Triangular series

B. Arithmetic series

C. Fibonacci series

D. Tribonacci series

50) Consider following given algorithm and identify the task performed by this

bstree(\*tree)

{

while((tree->left != null)&&(tree->right !=null))

{

if(tree-><tree->root)

bstree(tree->left);

else

return(1);

if(tree->right>tree->root)

bstree(tree->right);

else

return(1);

}

return(0);

}

Bubble sort

None of the mentioned options

Testwhethera binary tree is a binary search tree

Prim’s algorithm.

51) What will be the output of the following pseudocode?

Integer arr1[10], n, ctr, p , q, r

Set arr1[] = {1, 2, 3, 4, 5, 2, 6, 5, 9}, n = 9 ,ctr = 0

For (each p from 0 to n-1)

ctr = 0

for(each q from 0 to p-2)

if(arr1[p] = arr1[q])

ctr = ctr +1

end if

end for

for (each r from p + 1 to n-1)

if(arr1[p] = arr1[r])

ctr = ctr + 1

end if

end for

if(ctr EQUALS 0)

print arr1[p]

end if

end for

A. None of the mentioned options

B.1 2 3 4 5 6 9

C.1 3 4 6 9

D. 2 5

52) What will be the output of the following pseudocode?

Integer a[5], b[5], c[5], k

Set a[5] = { 2, 4, 6, 8, 10}

Set b[5] = {5, 7, 9, 11, 13}

for (each k from 0 to 4)

c[k] = a[k] + b[k]

end for

for (each k from 0 to 4)

print c[k]

end for

A. 11 12 13 14 15

B. 7 11 15 19 23

C. None of the mentioned options

D. 7 8 9 10 11

53) What will be the output of the following pseudocode?

Integer a[],k,l,m

Set a[10]= {20,15,25,13,12}

set I=0

For (each k from 0 to 4)

I=I+a[k]

End for

m=I/5

Print m

A.58

B.12

C.10

D.17

54)What will be the output of the following pseudocode?

Integer a[5][5],k,j;

for(k =0;k<5;j++)

a[k][j]=a[j][k]

End for

End for

Which of the following is true

A. It transposes the given matrix A

B. It doesn’t alter the given matrix A

C. None of the mentioned options

D. It makes the given matrix A, symmetric

55) What will be the output of the following pseudocode?

static char hello []=”hello”

Choose the option which will print “hello” as an output

puts(“hello”);

A. All the mentioned

B. printf(“%s”,”hello”);

C. puts(hello);

56) if (sizeof(double) > -1)

Printf ("M");

else

printf ("m");

return 0;

A. Compiler error

B. None

C. M

57)\_\_\_\_\_\_ is used to show hierarchy in a pseudo code.

Round brackets

A. Indentation

B. Semicolon

C. Curly braces

58)If you are writing code to find the length of a linked list, then which of the following values should you provide for the temp pointer to terminate the program?

· Maximum data value

· None of the mentioned options

· Address of the head pointer

· Null

59)What will be the output of the following pseudocode?

Integer a, b, c

Set a = 10, b = 20

for(c=a; c<=b; c=c+2)

a = a+c

b = b-a+c

if(a>10)

Print a

else

Print b

end if

end for

A.20

B.10

C. 40

D.30

60) What will be the output of the following pseudocode?

charstr[20]

s=string length(str)

str[5]=NULL

s=strlen(str)

print s

garbage value

A. 6

B. 4

C. 5

61) What is the output?

#include <stdio.h>

void fun(char\*\*);

int main()

{

char \*argv[] = {"ab", "cd", "ef", "gh"};

fun(argv);

return 0;

}

void fun(char \*\*p)

{

char \*t;

t = (p+= sizeof(int))[-1];

printf("%s\n", t);

}

A. ab

B. gh

C. ef

D. cd

**62)** How many times Capgemini is printed on console?

int main()

{

int a = 0;

while(a==0)

{

printf("Capgemini");

}

return 0;

}

A. 1

B. 2

C. infinite

D. none

63) Himanshu wants to write a program to print the larger of the two inputted

number. He writes the following code:

int number1, number 2

input number1, number 2

if (??) // Statement 1

print number1

else print number2

end if

Fill in the ?? in statement 1.

A. number2 equals number1

B. number1 <= number2

C. number2>number1

D.number1>number2

64) Sharmili wants to make a program to print the sum of all perfect cubes, where the

value of the cubes go from 0 to 100. She writes the following program:

integer i = 0, a // statement 1

integer sum = 0;

a = ( i \* i \* i )

while ( i < 100 ) // statement 2

{

sum = sum + a // statement 3

i = i + 1

a = ( i \* i \* i ) // statement 4

}

print sum

Does this program have an error? If yes, which one statement will you modify to

correct the program?

Statement 1

Statement 3

Statement 4

Statement 2

65) Bhavya wants to make a program to print the sum of all perfect squares, where

the value of the squares go from 0 to 50. She writes the following program:

integer i = 1, a // statement 1

integer sum = 0

while ( a < 50 ) // statement 2

{

10

sum = sum + a // statement 3

i = i + 1

a = ( i \* i ); // statement 4

}

print sum

Does this program have an error? If yes, which one statement will you modify to

correct the program?

Statement 2

Statement 4

Statement 3

Statement 1

66) AVL rotation is performed to make a bit balanced. Which of the following types of rotation are referred in a single rotation?

A.RR and LR

B.LL and RL

C.LL and RR

D.RR and RL

67) In a full binary tree, if the total no.ofnodes is 15, then how many internal nodes will be present?

A.9

B.8

C.5

D.7

68) What will be the output of the following pseudocode? Declare integer c,d,r

Integer array[6]={23,45,67,12,13 25} For(c=0;c<5;c++)

For(d=0;d<5-c-1;d++)

If(array[d]>array[d+1])

R=array[d]

Array[d]=array[d+1]

Array[d+1]=r

End if

End for

For(c=0;c<5;c++) Print array[c] End for

A .67 45 23 13

B. 45 67

C. 67 45 23 13 12

**D.12 13 23 45 67**

69) What is the output?

structDataFlair

{

int a;

float b;

char array[20];

}d;

int main()

{

printf("%ld", sizeof(structDataFlair));

return 0;

}

A. 20

B. 29

C. 28

D. 26

70) Find the answer

unsignedint a = -1;

int b = ~0;

int result;

if (b == a)

printf("equal");

else

printf("unequal");

return 0;

A. Compile error

B. unequal

C. equal

D. 0

71) Find the answer of below program

int array[10] = {3, 0, 8, 1, 12, 8, 9, 2, 13, 10};

int x, y, z;

x = ++array[2];

y = array[2]++;

z = array[x++];

printf("%d %d %d", x, y, z);

return 0;

A. 9 9 10

B.10 9 10

C. 9 10 9

D. None

72) what is the output of following program

inta,b,c;

a = b = c = 10;

c = a++ || ++b && ++c;

printf("%d %d %d",c, a, b);

A.10 11 10

B.10 11 1

C.1 11 10

D.1 1 10

73) Consider a Binary tree having two pointers for each of its children. These pointers are set to NULL if the corresponding child is empty. How many NULL pointers does a binary tree with 'N' nodes have?

A.N+1

B. The number depends on the shape of the tree

C. N

D. N-1

74) If a complete binary min- heap is made by including each integer in [ 1, 1023] exactly once. The depth of a node in the heap is the length of the path from the root of the heap to that node. Thus the root is at depth 0. The maximum depth at which integer 9 can appear:

A. None

B. 9

C. 8

D. log 9

75) Given below is the pre order traversal sequence of a binary search tree, what would be the post order traversal sequence of the same tree?

30, 20, 10, 15, 25, 23, 39, 35, 42

A. 15, 20, 10, 23, 25, 42, 35, 39, 30

B. Cannot be determined

C. 15, 10, 23, 25, 20, 35, 42, 39, 30

D. 15, 10, 25, 23, 20, 42, 35, 39, 30

76) What will be the output of the following pseudocode?

Input a = 5, b = 6

if ( printf ( “0” ))

print a

else

print b

a.0

b.5

c.05

d.03

77) What will be the output of the following pseudocode?

Input a[10] = {1,2,3,4,5,6,7,8,9,10}

print \* a + 1 - \* a + 3

a.4

b.100

c.44

d.error

78) What will be the output of the following pseudocode?

For input a = 8 & b = 9.

Function(input a, input b)

If(a < b)

return function(b, a)

elseif(b != 0)

return (a + function(a,b-1))

else

return 0

a. 56

b.78

c.72

d.68

79) What will be the output of the following pseudocode?

Integer A[5][5],k,j;

for (k=0;k<5;++k)

for(j=0;j<5;j++)

A[k][j]=A[j][k]

end for

end for

a. Both A and C

b. It makes the given matrix A, symmetric

c. None

d. It transposes the given matrix A

80) Consider a full binary tree with 11 internal vertices. Calculate the total number of vertices in the tree.

a.24

b.22

c.21

d.23

81) consider the following statements about postfix notation

1) the operator is written after operands

2) the operator is written in between the operands

3) pq- is postfix operation of p-q

4) p-q is postfix operation of pq-

which of the following statements are false

A) only 2 and 3

B) only 1 and 4

C) Only 1 and 3

D) Only 2 and 4

82) What will be the preorder traversal of a binary tree whose array representation is A,B,C,D,E,F,G?

a. A D B E C F G

b. A B D E C G F

c. A B D E C F G

d. A B E D C G F

83) Consider the following arithmetic expression written in a postfix notation

8 7 1 + - 200 +

Find the value of the above expression

( using stack data structure )

a.208

b.200

c.192

d.191

84) Consider an undirected graph G with 5 vertices . the adjacency matrix of the graph is shown below

0 0 1 0 1

1 1 1 0 1

0 0 0 0 0

1 0 0 0 0

1 0 1 0 1

Find the no of self loops in the directed graph G

a.2

b.4

c.3

d.1

85. Consider the following sorting techniques

1. Quick sort

2. Merge sort

Which of the above two sorting techniques is cache friendly?

a. Only 1

b. Only 2

c. Both 1 and 2

d. Neither 1 nor 2

86) Consider a linked list L. it contains the following integers in the given sequence 1->2->4->6. The following operations are performed .

1. The node containing 2 is deleted .

2. L is reversed

3. The last node is deleted

4. L is reversed

5. The last node is deleted .

What is the sum of all integers present in L after all the operations have been performed .

a.4

b.10

c.14

d.6

87) Consider the following algorithm

Begin

If top=-1 then stack empty

Item=stack(top)

Return item

End

It is given that symbols and varaibles have usual meaning.

Identify the correct statement about the operation

a. The algorithm returns the top element of the stack without deleting it

b. The algorithm returns the top element of the stack and deletes it from the stack

c. The algorithm inserts an element in the stack

d. None of the mentioned option

88) Consider the following statements about insertion sort

1. It takes order of n time when elements are already sorted.

2. It is a stable sorting technique

3. It is used when number of elements is very large .

Which of the above statement(s) are true ?

a. Only 2 and 3

b. Only 1

c. All 1,2,3

d. Only 1 and 2

89) While performing quick sort to sort an unsorted array, joseph picked the greatest element to partition the array. Which of the following time complexity cases will occur .

a. Cannot be occurred

b. Average case

c. Best case

d. Worst case

90) Consider a 3 ary tree of height 5. Calculate the maximum number of leaves the tree can have

a.1028

b. 243

c.200

d.64

91) Consider a connected a cyclic graph G consisting of 5 vertices in which there is exactly one path between each pair of vertices . which of the following statements can be definitely true about G?

a. G is complete graph

b. G has atleast one cycle

c. G is a tree

d. None of the mentioned options

92) Consider a binary tree T consisting of exactly one leaf node which is present at level L . what will be the number of nodes in T

A) L

B) L+1

C) L+3

D) L+5

93) Consider the following statements

1. Breadth first search is carried out with the help of stack

2. Depth first search Is carried out with the help of queue

Which of the following statement(s) are true

a. Only 1

b. Only 2

c. Both 1 and 2

d. Neither 1 nor 2

94) Consider a non-trivial tree T. which of the following can be the number of nodes in T

a.2

b.3

c.1

d. Cannot be determined

95) Consider a tree consisting of 8 nodes from A to H. which of the following can be the number of paths from B to E

a.4

b.3

c.1

d.Cannot be determined

96. What will be the output of the following pseudocode?

n=5

i = 0, s = 0

Function Sample ( int n )

while( n > 0 )

r = n % l0

p = 8 ^ i

s = s + p \* r

i = i + 1

n = n / 10

End While

Return s

End Function

a.187

b. 27

c. 5

d. 120

97) What will be the output of the following pseudocode?

Input f = 6,g = 9 and set sum = 0

integer n

if(g > f)

for(n = f ; n < g ; n = n + 1)

sum = sum + n

End for loop

else

print error message

print sum

a. 6

b. 9

c.15

d. **21**

**98.** What will be the output of the following pseudocode?

if ( 0 )

print True

print False

a. False

b. Error

c. True

d. No output

99. What will be the output of the following pseudocode if x=4?

defined in preprocessing as square ( x ) x \* x

integer i

i = 64 / square ( x )

print i

a.64

b. Garbage value

c.d4

d.16

100. What will be the output of the following pseudocode?

integer n = 5

for I = 1 to n;

print i

end for

a.6

b.cerror

c.2

d.1

101. Consider a binary tree, T. The pre order traversal of Tis DECBA. Which of the following is definitely a leaf node?

A . cannot be determined

B. Α

C.D

D. B

102.Consider two linked lists L1 and 12. They contain the following integers in the given sequence

LI: 1->3->4-28

L2: 2-5-6-7

L1 and L2 are merged in a way that the resulting linked list is sorted. The following operations are performed on the result

1. A new node containing 9 is joined at the end.

2. Reverse the merged list

3. The last node is deleted.

What is the sum of all integers present in the resultant linked list after all the operations have been performed?

A. 100

B. 50

C.36

D.64

103)What is a tree in which every level, except the last, is completely filled, and all nodes are as far left as possible in the last child called?

A. Skewed binary tree

B. Full binary tree

C. Complete binary tree

D. None of the mentioned options

104)Why is array based representation preferred for a binary heap?

1. Because binary heap is a complete binary tree.

2. Because binary heap is a full binary tree.

3. It is space efficient.

A. 1 and 3

B. Only 3

C. Only 2

D. Only 1

105) Consider a binary tree, T consisting of five nodes from A to E. The level order traversal of Tis ABCDE What can be the maximum height of the tree if it is given that C is a child of B?

A. 4

B. 2

C. 3

D. 5

106) Consider the following sorting techniques

1. Quick sort

2. Heap sort

3. Count sort

Which of the above sorting algorithms is/are unstable?

A.2 and 3 only

B.All 1, 2, and 3

C.1 and 3 only

D. 1 and 2 only

107)Consider the following sorting techniques

1. Merge sort

2. Insertion sort

3. Count sort

Which of the above sorting algorithms is/are non comparison based

Ops: A. 1 and 3 only

B. 2 and 3 only

C.3 only

D. 1 and 2 only

108)Consider a binary tree, consisting of the nodes from A to E. The Level order traversal of the tree T is ABCDE Which of the following node is definitely at level 1 assuming the root node to be level 0?

A. E

B.b

c.d

d.c

109)Consider an array of integers A(1,2,3). The following operations are performed on the array

1) 3 is appended.

2) Last element is deleted

3) 2 is appended.

4) East element is deleted.

calculate the value of A[-2]+A[2] after all the operation been performed.

a) 6

b) 5

c) 4

d) 7

110)Which of the following can definitely not be the number of children of a 3-ary tree?

A.4

B.3

C.2

D.0

111)which of the following is NOT a type of linked list?

None of the mentioned options

Circular linked list

Doubly linked list

Header linked list

112)consider the following list of numbers:

2, 6, 8, 4, 66, 9, 7, 0, 3, 33, 44

Jack wants to categorize the above numbers in three groups

Group-1 will contain numbers less than 5

Group-2 will contain numbers between 5 and 10

Group-3 will contain numbers greater than 10

The final output the jack wants is:

2, 4, 0, 3| 6, 8, 9, 7 | 66, 33, 44

Which data structure should be used to carry out the above operator?

Stack

Queue

Both queue or stack can be used

None of the mentioned options

113)For which of the following applications can you use hashing?

1. to construct a message authentication code

2. for timestamping

3. for detecting cycle in a graph

Choose the correct answer from the options given below.

Only 1 and 2

Only 1 and 3

Only 1

Only 2 and 3

114)What will be the output of the following pseudocode

Integer a[],k,t,m

Set a[]= {25,20,30,18,17}

Set t=0

For (each k from 0 to 4)

t=t+a[k]

if(t mod 2 equals 1)

Print True

Otherwise

Print False

End for

m=t/5

Print m

A. True False True True False 20

B. False True True True False 20

C. True False True True False 15

D. True True True True False 22

115)What will be the output of the following pseudocode for given a[5]={3,4,6,1,2,}and pos=2?

Declare i,j,n,pos

Repeat for j=pos to n-1

Set a[j]=a[j+1]

n=n-1

Display the new array

End

A. 3 2 4 6 1 2

B. 3 4 1 2

C. 3 4 2 1 2

D. 3 6 1 2

116)What will be the output of the following pseudocode?

Char str[100]=”India”, ch=’n’

Integer ind[10],loop,j=0

For(each loop from 0 to end of the string)

if(str[loop]==ch)

ind[j++]=loop

For(each loop from 0 to j-1)

Print ind[loop]

A. 3

B. 4

C. 1

D. 0

117) What will be the output of the following pseudocode?

Integer k=4

Integer \*const p=&k

Integer r=3

p=&r

Print p

A. Compile time error

B. It will print address of k and address of r

C. it will print address of r

D. it will print address of k

118)What will be the output of the following pseudocode?

Main()

integer i=10, \*p=&i

ru(p++)

ru(integer \*p)

print \*p

A. 10

B. 1144880

C. Garbage value

D. Segmentation fault

119)What will be the output of the following pseudocode if n=5 and elements of array are 24,20,60,100,200?

Integer fun(Integer a[], Integer n)

Integer x

if(n is equal to 1)

Return a[0]

else

x=fun(a,n-1)

If(x<a[n-1])

Return x

Else

Return a[n-1]

End Function fun()

A. 60

B. 20

C. 24

D. 100

120)What will be the output of the following pseudocode?

Integer n,j,k,c,t,b,array[5]

Set n=6 c=1

Set array[5] = {1,2,3,5,6}

b=array[0]

For(each k from 1 to n-2)

b=b^array[k]

End for

For(each k from 2 to n)

c=c^k

End fro

c=c^b

Print c

A. 17

B. 5

C. 6

D. 4

121)What will be the output of the following pseudocode?

Integer array[10]= {2,3,56,34}

Integer k,a,j,n

Set a=3,n=4

For (each k from 0 to a-1)

Set array [n] = array[0]

For (each j from 0 to n-1)

set array [j]=array[j+1]

End for

End for

For(each k from 0 to n-1)

Print array[k]

End for

A. 2 3 34 56

B. **34 2 3 56**

C. 56 34 3 2

D. None of the mentioned options

122)What will be the output for the following pseudocode for input pqr?

Fun(char a)

if(a[0] equals NULL)

return

end if

fun(a+1)

fun(a+1)

print(a[0])

End function Fun

A. None of the mentioned

B. rqppqr

C. rrqrrqp

D. ppqqrr

123)What will be the output of the following pseudocode?

Character ch1 = ‘a’, ch2 = ‘b’

int res = ch1 + ch2

print res

error

131

195

Undefined Behavior

124) What will be the output of the following pseudocode?

x = 4

y = ++x

z = x++

print x

print y

print z

6 5 6

6 5 5

4 5 4

4 5 5

125) What will be the output of the following pseudocode?

Character ch1 = ‘1’ ,ch2 = ‘2’

character c = ch1 + ch2

Print c-32

B

A

D

C

126) What will be the output of the following pseudo code for n = 91?

1. int fun ( int n)

2. if ( n > 100)

3. return n – 10

4. return fun ( fun ( n + 11))

a.91

b.121

c.110

d.99

127) What will be the output of the following code?

1. Integer a, b, c, d

2. set a = 8, b = 7 , c = 4, d = 6

3. a = b + c – d

4. b = a + d – c

5. d = a + b + d

6.print d

a.18

b.8

c.3

d.12

128) What will be the output of the following pseudo code?

1.Declare x, y, i

2.Set x = 0, y = 2

3.for i = 6 to x

4.y = y \* 1

5.Print y

6.i = i - 1

7.End for

a.4 8 16 32 64 128 128

b. None of the mentioned options

c.2 2 2 2

d.2 4 8 16 32 64 64

129) What will be the output of the following pseudo code for a = 10, b = 6?

1. Integer func(Integer a, Integer b)

2. Integer temp

3. while(b)

4. temp = a MOD b

5. a = b

6. b = temp

7. end while

8. return a

9. } [/ code

10.

11. [ Note: while(b) means the loop will execute until the b is non – zero]

a. 4

b.3

c.1

d.2

130) What will be the output of the following pseudo code?

1. Integer x, y, z, a

2. set x = 2, y = 1, z = 5

3. a = ( x AND y) OR ( z + 1)

4. print a

a.5

b.1

c.3

d.2

131) Consider a Binary tree having two pointers for each of its children. These pointers are set to NULL if the corresponding child is empty. How many NULL pointers does a binary tree with 'N' nodes have?

a. N+1

b. The number depends on the shape of the tree

c. N

d.N-1

132) What will be the output of the following pseudo code?

1. Integer arr1[10], n, ctr, p, q, r

2. set arr1[] = {1, 2, 3, 4, 5, 2, 6, 5, 9}, n = 9, ctr = 0

3. for( each p from 0 to n -1)

4. ctr = 0

5. for(each q from 0 to p – 2)

6. if(arr1[p] = arr1[q])

7. ctr = ctr + 1

8. end if

9. end for

10. for(each r from p + 1 to n – 1)

11. if(arr1[p] = arr1[r])

12. ctr = ctr + 1

13. end if

14. end for

15. if (ctr EQUALS 0)

16. print arr1[p]

17. end if

18. end for

a. None of the mentioned options

b.1 3 4 6 9

c.1 2 3 4 5 6 9

d.2 5

133) What will be the output of the following pseudo code for n = 1?

1. void reverse ( int n)

2. if( n greater than 5 )

3. exit

4. print n

5. return reverse( Increment n by 1)

6. end function reverse()

a. It will print 1 infinite times

b. None of the mentioned options

c.1 2 4 6 8

d.1 2 3 4 5

134) What will be the output of the following code?

1. char str[20]

2. Integer s

3. set str = “PQRSTUVWXYZ”

4. s = string\_ length(str)

5. str[3] = NULL

6. s = strlen(str)

7. Print s

[Note : The string\_ length() function calculates the length of a given string]

a.4

b.3

c.2

d. None

135) Which of the following statements is true regarding strictly Binary Tree?

a. A strictly binary tree with n leaves with ( n – 1) nodes

b. A strictly binary tree with n leaves with ( 2n – 1) nodes

c. A strictly binary tree with n leaves with ( 2n) nodes

d. A strictly binary tree with n leaves with ( 2n + 1) nodes

136) . What is the intention of the following pseudocode?

input base = 2, exponent = 3

power = 1

for num = 1 to exponent

power = power \* base

end for

print power

a. power of a number

b. Factorial of a number

c. prime number

d. None

137) What will be the output of the following pseudocode?

Integer n

for (n = 3; n != 0; n--)

print n

n = n-1

end for

a. Infinite loop

b. 3 1

c. 3

d. 3 2 1

138) What will be the output of the following pseudocode?

input a = 10, b = 10

x = a++

y = ++b

print x

print y

a. 10 10

b. 10 11

c. 11 10

d. 11 11

139) What will be the output of the following pseudocode?

input i = 0, j = 1, k = 2

m = i++ OR j++ OR k++

print i

print j

print k

print m

a.1 2 2 1

b.0 1 2 1

c.1 2 3 4

d.1 1 3 1

140) What will be the output of the following pseudocode?

Integer a = 11, b = 5

if ( a = 5)

b = 6

print a

print b

a.11 6

b.5 6

c.11 5

d. compiler error

141) What will be the output of the following pseudocode?

n=5

i = 0, s = 0

Function Sample ( int n )

while( n > 0 )

r = n % l0

p = 8 ^ i

s = s + p \* r

i = i + 1

n = n / 10

End While

Return s

End Function

a.187

b.27

c.5

d.120

142) What will be the output of the following pseudocode?

n=5

i = 0, s = 0

Function Sample ( int n )

while( n > 0 )

r = n % l0

p = 8 ^ i

s = s + p \* r

i = i + 1

n = n / 10

End While

Return s

End Function

a.187

b.27

c.5

d.120

143) What will be the output of the following pseudocode?

integer i = 0

while ( i++ < 5 )

print i

end while

a. Infinite loop

b.1 2 3 4 5

c.0 1 2 3 4

d.1 2 3 4

144) What will be the output of the following pseudocode?

Integer a = 1, b = 0

b = ++a + ++a

print a

print b

a.1 1

b.1 0

c. Compiler Dependent

d.2 2

145) What will be the output of the following pseudocode?

Integer a = 10, b = 20

b = (a + b)-(a = b)

print a

print b

a.10 20

b.15 15

c.20 10

d.1010 10100

146) What will be the output of the following pseudocode?

Integer a,b,v,c

set a=7, b=12,v=70

while(v>5)

a= a-v

c=(a+b)mod 10

while(c>7)

b=b+c

end while

v=v/2

end while

print b,c

a.16 82

b.12 1

c.14 -2

d.12 -1

147) What will be the output of the following pseudocode?

Input n = 5

num = 1

while ( num < = 2 \* n)

if( num % 2 == 1)

print num

num = num + 1

End while

a.1 3 5 7 9

b. No output

c.9

d.1 3 5

148) What will be the output of the following pseudocode?

Input f = 6,g = 9 and set sum = 0

integer n

if(g > f)

for(n = f ; n < g ; n = n + 1)

sum = sum + n

End for loop

else

print error message

print sum

a.6

b.9

c.15

d.21

149) What will be the output of the following pseudocode?

if ( 0 )

print True

print False

a. False

b. Error

c. True

d. No output

150) What will be the output of the following pseudocode?

Integer i = 0

while ( ++i < 5 )

print i

end while

a.4

b.1 2 3 4

c. Error

d.0 1 2 3 4

151) What will be the output of the following pseudocode if x=4?

defined in pre processing as square ( x ) x \* x

integer i

i = 64 / square ( x )

print i

a.64

b. Garbage value

c.4

d.16

152) What will be the output of the following pseudocode?

Character ch1 = ‘1’ ,ch2 = ‘2’

character c = ch1 + ch2

Print c-32

B

A

D

**C**

153) What will be the output of the following pseudocode?

Input a = 5, b = 6

if ( printf ( “0” ))

print a

else

print b

a.0

b.5

c.05

d.03

154) What will be the output of the following pseudocode?

input n = 5

num = 1

while ( num <= n )

if ( num % 2 == 1)

print num

num = num + 1

End while

a.1 3 5

b.1 3 5 7 9

c.9

d.No output

155) What will be the output of the following pseudocode?

Character ch1 = ‘a’, ch2 = ‘b’

int res = ch1 + ch2

print res

a.error

b.131

c.195

d. Undefined Behavior

156) What will be the output of the following pseudocode?

integer n = 5

for I = 1 to n;

print i

end for

a.6

b.error

c.2

d.1

157) What will be the output of the following pseudocode?

Integer A[5][5],k,j;

for (k=0;k<5;++k)

for(j=0;j<5;j++)

A[k][j]=A[j][k]

end for

end for

a.Both A and C

b.It makes the given matrix A, symmetric

c.None

d.It transposes the given matrix A

158) What will be the output of the following pseudocode?

x = 4

y = ++x

z = x++

print x

print y

print z

a.6 5 6

b.6 5 5

c.4 5 4

d.4 5 5

159) What will be the output of the following pseudocode?

Integer i=0

while( + (+i--)!= 0)

i- = i + 1;

end while

print i

a.error

b.1

c.0

d.-1

160) What will be the output of the following pseudocode?

For input a = 8 & b = 9.

Function(input a, input b)

If(a < b)

return function(b, a)

elseif(b != 0)

return (a + function(a,b-1))

else

return 0

a.56

b.78

c.72

d.68

161) What will be the output of the following pseudocode?

Input a[10] = {1,2,3,4,5,6,7,8,9,10}

print \* a + 1 - \* a + 3

a.4

b.100

c.44

d.error

162) Integer a[5]={5,1,15,2,25};

Integer I,j,m;

i=++a[1];

j=a[1]++;

m=a[i++];

print I,j,m;

A. 3 2 15

B. 2 3 10

C. 2 1 15

D. 1 2 5

163) What does the following declaration mean? int(\*ptr)[10];

A. Ptr is array of pointers of 10 integers

B. Ptr is a pointer to an array of 10 integers

C. Ptr is an array of 10 integers

D. Ptr is an pointer to array

164) Determine output

Integer i=5;

Print i++,i--,++i,--i,i;

Printf(“%d %d %d %d %d”, i++,i--,++i,--i,i);

A.45545

B.54544

C.55445

D.54554

165) Determine output

Integer i=-1,j=-1,k=0,l=2,m

M=i++ && j++ && k++ || l++

Print i,j,k,l,m

A.0 0 1 2 0

B.0 0 1 3 0

C.0 0 1 3 1

D.0 0 0 2 1

166) Determine output

Static Integer i=i++,j=j++,k=k++

Print i,j,k

A. 1 1 1

B. 0 0 0

C. Garbage values

D. Error

167) Integer arr[10] ={1,2,3,4,5})

Print arr[5]

A. Garbage value

B. 5

C. 6

D. 0

E. None of the above

168) What will be the output if array begins at address of 65486?

Integer arr={12,14,15,21,45}

Print arr, &arr

A. 65486,65468

B. 65486,65490

C. 65486,65487

D. 65486,65486

E. None of these

169) The seven elements A,B,C,D,E,F and Gare pushed onto a stack in reverse order. i.e starting from G. The stack is popped 5 times and each element is inserted into a queue, two elements are deleted from the queue & pushed back on the stack. Now one element is popped from the stack. The popped item is.

A. F

B. G

C. A

**D. B**

**170)** What does the following function do for a given linked list with the first node as head?

Void fun1(struct node\* head)

{

If(head==NULL)

return;

fun1(head->next);

printf(“%d “, head->data);

}

A. Prints all nodes of linked lists

B. Prints all node of linked list in reverse order

C. Prints alternate nodes of Linked List

D. Prints alternate nodes in reverse order

171) let x be an array. which of the following operations are illegal?

I. ++x

ii. x+1

iii. x++

iv. x\*2

A. I and ii

B. I ,ii and iii

C. Ii and iii

D. I , iii and iv

E. Iii and iv

172.What is the output of following function for start printing to first node of Following linked list

1->2->3->4->5->6

Void fun(struct node\* start)

{

If(start==NULL)

return;

printf(“%d “, start->data);

if(start->next !=null)

fun(strat->next->next);

printf(“%d “start->data);

}

A. 1 4 6 6 4 1

B. 1 3 5 1 3 5

C. 1 2 3 5

**D. 1 3 5 5 3 1**

173) Character p

Character a[10]={1,2,3,4,5,6,9,8}

P={a+1}[5]

Print p

A. 5

B. 6

C. 9

D. Error

E. None of the above

174) The following steps in linked list

p= getnode()

Info(p)=10

next (p) = list

list = p

result in which type of operation?

A. Pop operation in stack

B. Removal of a node

C. Inserting a node

D. Modifying an existing node

175) In a doubly linked list the number of pointers affected for an insertion operation will be

A. 4

B. 0

C. 1

D. None of these

176) Consider following given code and predict its output.

main() { int num[ ] = {1,4,8,12,16};

int \*a,\*b;

int i;

a=num;

b=num+2;

i=\*a+1;

printf("%d,%d,%d\n",i,\*a,\*b);

}

A. 2,1,8

B. 4,1,8

C. 4,4,8

D. 2,4,8

177) Suppose f(A,B)=A'+B. Simplified expression for function f(f(x+y,y),z) is :

A. x'+z

B. xyz

C. xy'+z

D. None of the mention options

178) The number of control lines for a 8-to-1 multiplexer is:

A. 3

B. 4

C. 2

D. 5

179)Stack is useful for implementing:

A. recursion

B. depth first search

C. both (A) & (B)

D. breadth first search

180) HUB is a \_\_\_\_\_\_\_ device and switch is a \_\_\_\_\_\_\_\_ device.

A. multicast,unicast

B. multicast,broadcast

C. broadcast,unicast

D. broadcast,multicast

181.what is the binary equivalent of the number 368?

a.111100000

b.111010000

c.101110000

d.110110000

182) The following fragment of c program will print?

char c[ ] = “DATA1234”

char \* P = C;

printf (“%S” P+P[3]-P[1]);

A.DATA1234

B.234

C.1234

D.A1234

183) A class defined with in another class is named as

a)inheritance

b)nested

c)container class

d)encapsulation

184) . Which of the OSI model is responsible for compression and decompression

a)presentation layer

b)transport layer

c)application layer

d)session layer

185)Upon mixing two independent one-many relationships\_\_\_\_\_\_\_\_\_\_dependency arises.

a)transitive

b)multivalued

c)functional

d)partial

186)If L is left node, M is middle node, R is right node then an L-M-R traversal can be termed as\_\_\_\_\_

A) post order

b) in order

c) preorder

d) this is invalid order

187) The number of full and half adders required to add 16-bit numbers is:

a.16 half-adders,0 full-adders

b.8 half –adders,8 full-adders

c.4 half-adders,12 full-adders

d.1 half-adder,15 full-adders

188) what will be the output of following C code?

1. struct abc

2. {

3. int b=6;

4. char c;

5. }

6. structure;

7. int main()

8. {

9. int i=sizeof(structure);

10. printf(“%d”,i);

11. }

a.4

b.1

c.2

d.6

189) There is a new data-type which can take as values natural numbers between (and including) 0 and 25. How many minimum bits are required to store this datatype.

a.4

b.5

c.1

d.3

190)A data type is stored as an 6 bit signed integer.

Which of the following cannot be represented by this data type?

a.-12

b.0

c.32

d.18

191) A language has 28 different letters in total. Each word in the language is composed of maximum 7 letters. You want to create a data-type to store a word of this language. You decide to store the word as an array of letters. How many bits will you assign to the data-type to be able to store all kinds of words of the language.

a. 7

b.35

c.28

d.196

192) A 10-bit unsigned integer has the following range:

a.0 to 1000

b.0 to 1024

c.1 to 1025

d.0 to 1023

193) Rajni wants to create a data-type for the number of books in her book case. Her shelf can accommodate a maximum of 75 books. She allocates 7 bits to the datatype. Later another shelf is added to her book-case. She realizes that she can still use the same data-type for storing the number of books in her book-case. What is the maximum possible capacity of her new added shelf?

a.52

b.127

c. 53

d.75

194) A new language has 15 possible letters, 8 different kinds of punctuation marks and a blank character. Rahul wants to create two data types, first one which could store the letters of the language and a second one which could store any character in the language. The number of bits required to store these two data-types will respectively be:

a.3 and 4

b.4 and 3

c.4 and 5

d.3 and 5

195)Parul takes as input two numbers: a and b. a and b can take integer values between 0 and 255. She stores a, b and c as 1-byte data type. She writes the following code statement to process a and b and put the result in c. c = a + 2\*b To her surprise her program gives the right output with some input values of a and b, while gives an erroneous answer for others. For which of the following inputs will it give a wrong answer?

a. a = 10 b = 200

b. a = 200 b = 10

c. a = 50 b = 100

d. a = 100 b = 50

196)Prashant takes as input 2 integer numbers, a and b, whose value can be between 0 and 127. He stores them as 7 bit numbers. He writes the following code to process these numbers to produce a third number c. c = a - b In how many minimum bits should Prashant store c?

a.6 bits

b.7 bits

c.8 bits

d.9 bits

197) Ankita takes as input 2 integer numbers, a and b, whose value can be between 0 and 31. He stores them as 5 bit numbers. He writes the following code to process these numbers to produce a third number c. c = 2\*(a - b) In how many minimum bits should Ankita store c?

a.6 bits

b.7 bits

c.8 bits

d.9 bits

198)A character in new programming language is stored in 2 bytes. A string is represented as an array of characters. A word is stored as a string. Each byte in the memory has an address. The word "Mahatma Gandhi" is stored in the memory with starting address 456. The letter 'd' will be at which memory address?

a.468

b.480

c.478

d.467

199)Stuti is making a questionnaire of True-false questions. She wants to define a data-type which stores the response of the candidate for the question. What is the most-suited data type for this purpose?

a. integer

b. boolean

c. float

d. character

200) . What will be the output of the following pseudo-code statements:

integer a = 456, b, c, d =10

b = a/d

c = a – b

print c

a.410

b.410

c.411

d. 411

201)What will be the output of the following pseudo-code statements:

integer a = 984, b, c, d =10

print remainder(a,d) // remainder when a is divided by d

a = a/d print remainder(a,d) // remainder when a is divided by d

a.48

b.Error

c.84

d.44

202)What will be the output of the following code statements?

integer a = 50, b = 25, c = 0

print ( a > 45 OR b > 50 AND c > 10 )

a.1

b.0

c. -1

d.10

203) What will be the output of the following code statements?

integer a = 50, b = 25, c = 5

print a \* b / c + c

a. 120

b.125

c.255

d.250

204)What will be the output of the following code statements?

integer a = 10, b = 35, c = 5

print a \* b / c - c

a.65

b.60

c. Error

d.70

205)integer a = 10, b = 35, c = 5

Comment about the output of the two statements?

print a \* b + c / d

print c / d + a \* b

a. Differ due to left-to-right precedence

b. Differ by 10

c. Differ by 20

d. Same

206) integer a = 40, b = 35, c = 20, d = 10

Comment about the output of the following two statements:

print a \* b / c - d

print a \* b / (c - d)

a.Differ by 80

b.Same

c.Differ by 50

d.Differ by 160

207)integer a = 60, b = 35, c = -30

What will be the output of the following two statements:

print ( a > 45 OR b > 50 AND c > 10 )

print ( ( a > 45 OR b > 50 ) AND c > 10 )

a.0 and 1

b.0 and 0

c.1 and 1

d.1 and 0

208)What will be the output of the following pseudo-code statements:

integer a = 984, b=10 //float is a data-type to store real numbers.

float c

c = a / b

print c

a.98.4

b.984

c. 98

d. Error

210) integer a = 40, b = 35, c = 20, d = 10

Comment about the output of the following two statements:

print a \* b / c - d

print a \* b / (c - d)

a.Differ by 80

b.Same

c.Differ by 50

d.Differ by 160

211)integer a = 60, b = 35, c = -30

What will be the output of the following two statements:

print ( a > 45 OR b > 50 AND c > 10 )

print ( ( a > 45 OR b > 50 ) AND c > 10 )

a.0 and 1

b.0 and 0

c.1 and 1

d.1 and 0

212) Shashi wants to make a program to print the sum of the first 10 multiples of 5. She writes the following program, where statement 5 is missing:

integer i = 0

integer sum = 0

while ( i <= 50 )

{ sum = sum + i -- MISSING STATEMENT 5 -- }

print sum

Which of the following will you use for statement 5?

a.i = 5

b.i = 5 \* i

c.i = i + 1

d.i = i + 5

213)Shantanu wants to make a program to print the sum of the first 7 multiples of 6. He writes the following program:

integer i = 0 // statement 1

integer sum // statement 2

while ( i <= 42 ) // statement 3

{

sum = sum + i // statement 4

i = i + 6;

}

print sum // statement 6

Does this program have an error? If yes, which one statement will you modify to correct the program?

a. Statement 1

b. Statement 2

c. Statement 3

d. Statement 4

214) Sharmili wants to make a program to print the sum of all perfect cubes, where the value of the cubes go from 0 to 100. She writes the following program:

integer i = 0, a // statement 1

integer sum = 0;

a = ( i \* i \* i )

while ( i < 100 ) // statement 2

{

sum = sum + a // statement 3

i = i + 1 a = ( i \* i \* i ) // statement 4

}

print sum

Does this program have an error? If yes, which one statement will you modify to correct the program?

a.Statement 1

b.Statement 2

c.Statement 3

d.Statement 4

e.No error

215)Bhavya wants to make a program to print the sum of all perfect squares, where the value of the squares go from 0 to 50. She writes the following program:

integer i = 1, a // statement 1

integer sum = 0

while ( a < 50 ) // statement 2

{

sum = sum + a // statement 3

i = i + 1

a = ( i \* i ); // statement 4

}

print sum

Does this program have an error? If yes, which one statement will you modify to correct the program?

a.Statement 1

b.Statement 2

c.Statement 3

d.Statement 4

e.No error

216)Vijay wants to print the following pattern on the screen: 2 2 4 2 4 6 2 4 6 8 He writes the following program: integer i = 1, j=2 // statement 1

while ( i <= 4 ) // statement 2

{

j = 2;

while ( j <= ? ) // Statement 3

{

print j

print blank space

j = j + 2

}

print end-of-line \takes the cursor to the next line

i = i + 1

}

What is the value of ? in statement 3

a.8

b.i

c.2\*i

d.4

217) Shravanti writes the following program:

integer i = 0, j

while ( i < 2 )

{

j = 0;

while ( j <= 3\*i )

{

print j

print blank space

j = j + 3

}

print end-of-line \takes the cursor to the next line

i = i + 1

}

What will be the output of the program?

a. 0 0 3

b. 0 3 0 3 6

c. 0 0 3 6 0 3 6 9

d. 0 3 6 0 3 6 9 0 3 6 9 12

218) Jaswinder has a book of tickets and wants to store ticket numbers in a data structure. New tickets are added to the end of the booklet. Ticket at the top of the stack is issued to the customer. Which data structure should Jaswinder use to represent the ticket booklet?

a.Queue

b.Stack

c.Array

d.Graph

219) A queue is implemented as a (singly linked) linked-list. Each node has an element and pointer to another node. Rear and Front contain the addresses of the rear and front node respectively. If the condition (rear isequal front) is true and neither is NULL, what do we infer about the linked list?

a. It has no elements

b. It has one element

c. There is an error

d. None of these

220) A queue is implemented by a linear array of size 10 (and not as a circularly connected array). Front and Rear are represented as an index in the array. To add an element, the rear index is incremented and the element is added. To delete an element, the front index is incremented. The following operations are done on an empty queue. ADD 1; DELETE; ADD 2; ADD 3; ADD 4; DELETE, DELETE After this set of operations, what is the maximum capacity of the queue?

a. 6

b. 7

c.10

d. None of these

221) A stack is implemented as a (singly-linked) linked-list, where each node contains data and address of another node. The top node will contain the address of which node?

a. No node. It will be empty

b. The node containing the first element pushed into the stack.

c. The node containing the element which was pushed just before the top element.

d. None of these

222) A queue is implemented as a (singly linked) linked-list for easy addition and deletion of elements. Each node has an element and pointer to another node. Which node will point to empty/no location?

a. Front

b. Rear

c. Both

d. None of these

223) Q is an empty queue. The following operations are done on it:

ADD 5

ADD 7

ADD 46

DELETE

ADD 13

DELETE

DELETE

ADD 10

What will be the content of Q after these operations. Front is marked by (F) and Rear is marked by (R).

a.10(R) 13(F)  
b.5(R) 10(F)

c.13(R) 10(F)

d.10(R) 5(F)

224) A stack is implemented as a linear array A[0…N-1]. Noor writes the following functions for popping an element from the stack.

function POP( top, N )

{

if(X)

{

top = top – 1

}

Else

{

print "Underflow"

}

return top

}

Fill in the condition X

a.top< N-1

b. top>1

c.top >= 0

d.top<n

225) A stack is implemented as a linear array A[0…N-1]. Farhan writes the following functions for pushing an element E in to the stack.

function PUSH( top, E, N )

{

if(X)

{

top= top+1

A[top] = E

}

else

{

print "Overflow" }

return top

}

Fill in the condition X

a.top< N

b.top <n-1

c. top > 1

d.top>0

226) A is an empty stack. The following operations are done on it.

PUSH(1)

PUSH(2)

POP

PUSH(5)

PUSH(6)

POP

What will the stack contain after these operations. (Top of the stack is underlined)

a.5 6

b.1 5

c. 5 6

d.1 5

227) The array A has n elements. We want to determine the position of X in the array. We know that X is present in the array A and X can be present at any location in the array with equal probability. How many comparisons will be required on average to find the element X using linear search?

a.n

b.(n+1)/2

c.2\*n

d.n^2

228) Srishti writes a program to find an element in the array A[5] with the following elements in order: 8 30 40 45 70. She runs the program to find a number X. X is found in the first iteration of binary search.

What is the value of X?

a.40

b.8

c.70

d.30

229) An array of 5 numbers has the following entries in order: 7 4 5 10 8. Prashant uses selection sort to sort this array in descending order. What will the array contain after two iterations of selection sort?

a. 10 8 7 5 4

b. 10 8 5 7 4

c. 8 10 5 7 4

d. None of these

230) Ques An array contains the following elements in order: 7 6 12 30 18. Insertion sort is used to sort the array in ascending order. How many times will an insertion be made?

a.2

b.3

c.4

d.5

231) A full binary tree with n leaves contains

a.2n + 1 nodes

b.log2 n nodes

c.2n - 1 nodes

d.2n nodes

232) A hash table can store a maximum of 10 records. Currently there are records in locations 1, 3, 4, 7, 8, 9, 10. The probability of a new record going into location 2, with a hash function resolving collisions by linear probing is

a.0.6

b.0.1

c.0.2

d.0.5

233) As part of the maintenance work, you are entrusted with the work of rearranging the library books in a shelf in proper order, at the end of each day. The ideal choice will be

a. bubble sort

b. insertion sort

c. selection sort

d. heap sort

234) Number of possible ordered trees with 3 nodes A, B, C is

a.16

b.12

c.13

d.14

235)The best sorting methods if number of swapping done is the only measure of efficiency is

a. Bubble sort

b. Selection sort

c. Insertion sort

d. Quick sort

236)Which of the following is a bad implementation for a queue?

a. Circular List

b. Doubly linked list

c. Singly linked List

d. Linear Static Array

237)Which of the following statements are true about a doubly-linked list?

a.it may be either linear or circular

b.it must contain a header node

c.it will occupy same memory space as that of linear linked list, both having same number of nodes

d. None of these

238)Which of the following data structure may give overflow error, even though the current number of element in it is less than its size ?

a. Queue implemented in a linear array

b. Queue implemented in a circularly connected array

c. Stack implemented in a linear array

d. none of these

**INFOSYS TECHNICAL PSEUDOCODE QUESTIONS:**

**1.** Predict the output of the following pseudo code if the value of the number is 6:

Read number

K=2

i=2

while i<=number

k=k\*i

i=i+1

end while

write kA. 1440.0

B. 1700.0

C. 1560.0

D. 1340.0

**Answer:** Option A

**Explanation**:

First iteration: num=6, k=2, i=2

while condition true

k=k\*i= 2\*2 = 4

i=2+1 = 3

Second iteration: num=6, k=4, i=3

while condition true

k=k\*i= 4\*3 = 12

i=3+1 = 4

Third iteration: num=6, k=12, i=4

while condition true

k=k\*i= 12\*4 = 48

i=4+1 = 5

Fourth iteration: num=6, k=48, i=5

while condition true

k=k\*i= 48\*5 = 240

i=5+1 = 6

Fifth iteration: num=6, k=240, i=6

while condition true

k=k\*i= 240\*6 = 1440

i=6+1 = 7

Sixth iteration: num=6, k=1440, i=7

while condition false

Printing k value which is 1440**Q2.** Predict the output of the following pseudo code if the value of the n is 35

Read n

i= 0

While n%10!=0

n=n+3

i++

end while

n=n+i

write n

A. 50.0

B. 55.0

C. 53.0

D. 45.0

**Answer:**Option C

**Explanation**:

1 st iteration: n=35, i=0,

35%10!=0 True

n = n+3= 35+3 = 38

i=i++ = 1

n = n+I = 38+1= 39

2 nd iteration: n=39, i=1,

39%10!=0 True

n = n+3= 39+3 = 42

i=i++ = 2

n = n+i = 42+2= 44

3 rd iteration: n=44, i=3,44%10!=0 True

n = n+3= 44+3 = 47

i=i++ = 3

n = n+i = 47+3= 50

4 th iteration: n=50, i=3,

50%10!=0 False

n = n+3 // will not be executed

i=i++ // will not be executed

n = n+i = 50+3= 53

print n that is 53

**Q3.** What will be the number of “\*” printed by the given pseudocode when input is 25?

Write ”Please enter the number”

Read input

Repeat while input>0

If (star>0 and star<=10)

Write\*

Else if(star>10 and star <=20)

Write\*\*

Else if(star>20 and star<=30)

Write \*\*\*

Input—

End if

End while

A. 55.0

B. 35.0

C. 25.0

D. 45.0

**Answer**:Option D

**Explanation**:1 st if condition will be satisfied for 1 to 10 values of the input and print 10 stars

2 nd if condition will be satisfied for 11 to 20 values of the input and print 20 stars

3 rd if condition will be satisfied for 21 to 25 values of the input and print 15 stars.

Therefore the total stars printed is 10+20+15 =45 stars

**Q4.** You have a vehicle class, a car class, and a person class, you have to implement the

functionalities of a bird, dog, cat, bus, auto and 2 specialized car classes for hybrid and

electric vehicles.

Which of these options is the most efficient way to do so?

1. Make a new class for all the required methods and implement all methods separately.

2. Inherit the car class into the specialized car and then implement the extra methods.

3. Make a new class Big vehicles and then inherit properties from it to make the bus classes.

4. Inherit the person class to bird, dog, cat, and then override the methods that are not

required.

5. Make new class animals and use this to make the dogs, cats and birds class.

6. Make a new three wheeled vehicle inherited from vehicle class for auto.

7. Inherit vehicle class for auto

A. 2,5,7

B. 2,5,6

C. 3,4,6

D. 1

**Answer**:Option A

**Explanation**: The process to be followed is; Inherit the car class into the specialized car and

then implement the extra methods, Make new class animals and use this to make the dogs,

cats and birds class, 1. Inherit vehicle class for auto**Q5.** Class A contains two methods, namely “me” and “see”. Class B inherits Class A and

overrides the “see” method. Class C also inherits methods from Class A and overrides the

“see” method. Class B and class C are both inherited by class D using the concept of

multiple inheritances.

In the given scenario, identify the problem generated by the behaviour of the “see” method?

A. Dexterity problem

B. Coherence Problem

C. Cohesion Problem

D. Diamond Problem

**Answer**: Option D

**Explanation**: Here the problem would be with the path for the methods to be inherited from the

class A, there would be an ambiguity in the call of the methods see basically from which of

the classes i.e. will it be from B or C. This is a famous problem in inheritance called the

diamond problem as it looks like a diamond in a flow chart. This problem can be resolved

using scope resolution operators or Super keyword

**ACCENTURE TECHNICAL QUESTION:**

1) Ravi wants to install an elevator at his home for domestic uses. He has everything except equal weight boxes to balance it on the either side ( two weights) of the elevator .help ravi installing the elevator with the multiple weight boxes he has by returning the final weight which can be formed by merging possible unequal weights . the only condition here is the final weight boxes should be of equal weights . return the maximum possible final weight so that elevator can be more balanced

Sample input:-

1 2 3

Output :-

3

Explanation :-

Here to balance the weights the only possible way is to merge the weights 1 and 2 such that we can form two final weight boxes of 3

2) What will be the output of the following pseudocode

Integer a,b,c

Set a=4,b=7,c=7

for (each c from 4 to 8)

b=c+a

if ((b+c)<(5-b))

b=(c+7)+c

end if

end for

print a+b

A)11

B) 15

C)17

D) 12

3) while playing with the number system , nobita found some interesting numbers and named them nobita’s numbers . A number is considered to be nobita’s number if all adjacent digits of the number have an absolute difference of 1.

Write a program to find sum of all of nobita’s numbers within a given range [X,Y]

Read the input from STDIN and print the output to STDOUT .

Do not write arbitrary strings anywhere in the program , as these contribute to the standard output and test cases will fail

Constraint

10<=X<=Y<=107

Input format

The input contains X and Y separated by single white space

Output format

The output contains the sum of all of nobita’s numbers in the given range

Sample input 1

123 456

Sample output

4119

Explanation

Consider the first number in the range :123

The absolute difference between 1 and 2 is 1 and between 2 and 3 is 1

Thus all adjacent digits of the number have an absolute difference of 1 andhence this is a nobits’s number

4)when you add a software stack , such an operating system and applications to the service , the model shifts to \_\_\_\_ model

A) SaaS

B) PaaS

C) IaaS

D) all of the mentioned

5) the postfix form of A\*B+C/D is

A) \*AB/CD+

B) AB\*CD/+

C) A\*BC+/D

D) ABCD+/\*

6) the postfix form of the expression (A+B)\*(C\*D-E)\*F/G is

A) AB+CD\*E-FG/\*\*

B) AB+CD\*E-F\*\*G/

C) AB+CD\*E-\*F\*G/

D) AB+CDE\*-\*F\*G/

7) what will be the output of the following program

Public class Test

{

Public static void main (string args[])

{

String x=”Addresses”;

String answer=””;

Int I;

for(i=0;i<x.length();i++)

{

Int count =0;

for( int j=I;j<x.length();j++)

if(x.charAt(i)==x.charAt(j))

{

Count++;

break;

}

}

answer +=x.charAt(i)+integer.tostring(count);

}

System.out.print(answer);

}

}

8)what will be the output of the following pseudocode for a=4 ,b=4,c=4

Integer funn( integer a, integer b, integer c)

C=(c+a)^c

a=c+12)+a

a=a+b

return a+b+c

9) what will be the output of the following pseudocode for a=9,b=3,c=6

Integer funn( integer a, integer b, integer c)

for (each c from 5 to7)

a=(b+c)+b

if ((5+8)>(a+5))

continue

else

jump out of the loop

end if

a=(c^10)+b

end for

return a+b

10) write a program that will take a string as input . the program will then determine whether each left parenthesis “(“ has a matching right parenthesis “)” .if so, the program will print 0 else the program will print 1

For example

For the input provided as follows

HELLO AND (WELCOME ( TO THE) TCEA(CONTEST)TODAY) IS (SATURDAYO)

The output of the program will be

0

Another example

For the input provided as follows

(9x(7-2)\*(1x5)

The output of the program will be

1

11) what will be the output of the following pseudocode

Integer a,b,c

Set a=3,b=4,c=4

For (each c from 5 to 7)

a=9\*c

if((b+a)<(6-b))

b=12+b

a=(5+2)+a

else

a=a+c

c=(a+1)+a

continue

end if

end for

print a+b

12) what is the output of the following code given below? Now ,let us take a small test

# include <stdio.h>

Int main()

{

Char ch=”A”

Print (“%d\n”,ch);

Return 0;

}

A) A

B) A’

C) 65

D) 97

13) which of the following is the fastest way to find a large file with source code of a software that your senior sent you months ago. If your inbox contains more than 5000emails and many of them are from your senior that contains attachments

A) arrange by -> from

B) arrange by -> attachments

C) by searching on word “code”

D) arrange by -> size

14) in ms-excel , which of the following should precede a numeric value , so that the numeric valuecould be treated as value

A) exclamation (!)

B) apostrophe (‘)

C) hash(#)

D) tilde

15) data structure in which one predecessor may have one or more successor , that data structure is called as

A) primitive datastructure

B) non linear data structure

C) non primitive datastructure

d) linear data structure

16) mathematical model that canhave set of operations that can be performed on that model is called as

A) composite datatype

B) primitive datatype

C) abstract datatype

d) none of these

17) to make the number pad act like a directional arrow ,we press

A) numlock

B) capslock

C) arrow lock

d) shift

18) which router command allows you to view the entire contents of all access lists

A) router#show interface

B) router >show ip interface

C) router # show access-lists

D) router.>show all access lists

19) which of the following kind of variable would help in keeping an ordered set of values in memory that can be referenced as eg. A[3],A[n+1] etc?

A) file

B) array

C) string

D) container

20) what is the output of the following code support

#include<stdio.h>

main()

{

Short unsigned int i=0;

Printf(“%n\n”,i--);

}

A) 0

B) Compile error

C) 65536

D) 32767

21) BINARY TREE COMBINATIONS

Given the elements of binary tree in an array format . you need to return the number of possible ways to reorder the elements in the array such that the binary tree is similar to the older one

Sample input :- 4 3 5

Output :-1

22) you are given a function ,

Int \*\* sort2DArrayByRow( int m , int n ,int \*\* arr);

The function accepts a two dimensional integer array ‘arr’ of m rows and n columns .

Implement the function to return the 2D array after sorting each row of array ‘arr’ in ascending order

Assumptions

1. m>0 and n>0

2. array index starts from (0,0)

note:-

you need to sort each row in ascendingorder

example

input:-

3

4

7 9 2 4

3 2 5 4

9 7 8 1

Output:-

2 4 7 9

2 3 4 5

1 7 8 9

Explanation :-

Sorted the first , second and third row in ascending order

23) The data structure required to evaluaate a postfix expression is

A) queue

B) stack

C) array

D) linked list

24) what is the output of the following function for start pointing to first node of the following linked list?

1->2->3->4->5->6

Void fun(struct node\* start)

{

If(start==NULL)

Return ;

Printf(“%d”, start ->data);

If(start ->next!=NULL)

Fun(start->next->next);

Printf(“%D”,start->data);

}

A) 1 4 6 6 4 1

B) 1 3 5 1 3 5

C) 1 2 3 5

D) 1 3 5 5 3 1

25) social media handles like facebook , Instagram ,youtube works on which type of cloud infrastructure model

A) cloud

B) PAAS

C) hybrid cloud infrastructure

d) SAAS

E) IAAS

26) what will be the output of the following pseudocode

Input m=9,n=6

m=m+1

N=n-1

M=m+n

If (m>n)

Print m

Else

Print n

A) 6

B) 5

C) 10

D) 15

27)

|  |  |  |
| --- | --- | --- |
| process | Arrival time | Burst time )in milliseconds) |
| P1 | 3 | 3 |
| P2 | 2 | 1 |
| P3 | 0 | 6 |
| P4 | 6 | 5 |

The processes P1,P2,P3,P4 are shown in the table are processed by preemptive shortest job First [s/F] scheduling algorithm . in what sequence will the cpu be assigned o the processes

A) P2-p1-p4-p3

B) P2-p3-p1-p3-p4

C) P3-p1-p4-p2

D) P3-p2-p1=p3-p4

28) in a hash table of size 10, where is element 7 placed

A) 6

B) 7

C) 8

D) 17

29) given the following case

Mae’s accounting services helps each customer figure their tax owed. The customer’s first name , middlename and last name go on the form . the number of dependents is needed along the total income of the year . mae charges a fee of 1.5 %of total income for the service

Which one of the following datatypes should be the best fit for a variable that stores the number of dependents of the customer

A) Double

B) Int

C) Char

D) String

30) there are 10 students in a clas. These students take 5 exams . accept the marks of the 10 students in 5 exams . if a student has got < 40 then mark him as fail . if a student has got more than 75 then mark him as pass . at the end of accepting the marks forall the students print out the following information

Student name , average marks , number of papers with distinction and number of papers failed

31) time taken for addition of element in queue is

A) O(1)

B) O(n)

C) O(log n)

D) none of these

32) following is a java code snippet

Public static void main (string [] args)

{

Int x=0;

Assert (x>0) ? “positive” :” zero or negative”;

System.out.println (‘ end of program”);

}

Which of the following is correct about the above program

A) The output of the program will be “ end of program”

B) The output of the program will be “ zero or negative”

C) An assertion error is thrown with the message “ assertion failed”

D) The program will give a compilation error on the assert statement

33) what is wrong with the following code snippet

try:

file=open(filepath)

dat=file.read()

finally:

file.close()

select the correct answer

A) If an error is raised , the file will remain open

B) The file may be closed before all data is read

C) If opening the file fails, a different error is raised

D) Not all bytes from the file are read

34) # include<stdio.h>

Void 1 (int a[])

{

Int I;

For (i=0;i<3;i++)

a[i]++;

}

main()

{

Int I,a[]={10 , 20, 30};

F(a);

For (i=0;i<3;++i)

A) 10 20 30

B) 11 21 31

C) Compile error

D) Runtime error

36) what is the big O time complexity of the following?

For ( var i=0;i<n;i++)

{

For (var j=0;j<m;j++)

{

}

}

A) O(n)

B) O(m)

C) O(nm)

D) O(n+m)

37) statistical calculations and preparation of tables and graphs can be done using

A) adobe photoshop

B) excel

C) notepad

D) power point

38) what will be the output of the following C code

# include<stdio.h>

Voidmain()

{

Int k;

For (k=-3; k<-5;k++)

Print(“helo”);

}

A) Hello

B) Infinite hello

C) Run time error

D) Nothing

39) what is the correct output of the following C# program

Using system;

Public class test

{

delegate void DTest (string.s)

public static void main()

{

DTest1 =n=>{ string str =n+””+”programming “. Console writeLine(str) ; );

t( “example”);

}

}

A) Programming example

B) Example programming

C) Example

D) Code will throw a compilation error

40) the message must be encrypted at the sender site and decrypted at the

A) sender site

B) site

C) receiver site

D) conferencing

41) choose the right set of statements from the from the following regarding sorting , searching and hashing

1. if input data is in sorted order then time complexity o bubble sort is O(n)

2. insertion sort proceeds by placing the last element of unsorted part into the sorted part

3. quick sort is an out of place sort

4. an in place sort requires only a negligible amount of storage for sorting

A) 1and 4

B) 2 and 4

C) 2 and 3

D) 1 and 3

42) integer funn(integer a,intger b,integer c)

c=(11+5)+a

a=(a+c)+b

c=(11+9)+b

return a+b+c

A) 60

B) 48

C) 44

D) 47

43) what will be the output of the following pseudocode

Integer a,b,c

Set a=4,b=2,c=7

If((a^b)<(c+a))

c=(5+3)+a

c=11&a

c=(a^12)^a

end if

print a+b+c

A) 19

B) 37

C) 17

D) 18

44) the prefix of (A+B)\*(C-D)

A) +AB\*(C-D)

B) \*+ABCD

C)\*+AB-CD

D)\*AB+CD

45) what command will permit SMTP mail to only host 1 1 1 1

A) access-list 10 permit smtp host 1 1 1 1

B) access -list 110 permit ip smtp host 1 1 1 1

C) access-list 10 permit tcp any host 1 1 1 1 eq smtp

D) access-list 110 permit tcp any host 1 1 1 1eq smtp

46) What will be the output of the following C code?

advertisement

#include <stdio.h> vold foo(const int"). int main() const int = 10; printf("%d"); foo(&l);

printf("%d". 1):

void foo(const int \*)

1= 20:

Options

compile time error

10 20

undefined value

10

47)What will be the output of the given C++ program?

#include <iostream> int main(int argz, const char \* argx[])

int k = 92;

int \*pointer1 = &k;

std::cout << "Value=" << \*pointer1 << std::endl; if(pointer1 != &k)

{

}

std::cout << "Different memory location" << std::endl;

else

{

std::cout << "Same memory location" << std::endl;

if(true)

return 0;

else

std::cout << "Program Termination" << std::endl;

}

O Value=92 Different memory location

O

Value=92 Same memory location

O Value=92

Different memory location Program Termination

O Value=92

Program Termination

48) Which of the following subset of SQL commands, can be used to manipulate Oracle Database Structures, including tables?

Data Definition Language

Data Manipulation Language

Data Description Language

Data Retrieval Language

49) Write a program to take two integers & n as input and find the number of possible sequences of length n such that each of the next element is greater than or equal to twice of the previous element but less than or equal to m.

Example 1:

Input:

10

4

Output: 4

Explanation there should be no elements and value of last element should be at- most m.

The sequences are {1, 2, 4, 8}, {1, 2, 4, 9}, {1,2,4,10}, {1,2,5,10}

Example 2:

Input:

5

2

Output: 6

50) 4) Write a Program TO find SUM of ALL integers BETWEEN two integer numbers taken as input AND are divisible BY 7.

Constraint

input1 <input2

Example Input:

1

20

Example Output:

21

51) Multiple Choice (Select 1 out of 4 options, for the question below) What will be the output if the following pseudocode if a-10 and b-6:

Integer func (Integer a-Integer b)

Integer temp

while(b)

temp = a MOD b

a=b

b = temp

end while

return a

End function func()

**Options**

A. 2

B. 4

C. 3

D. 1

52) n = 127

Function Sample(int n)

while(n> 0):

r=n% 10

p=8^1

s=s+p\*r

I += 1

n=n/10

return s

End Function

Options

A. 27

B.187

C. 87

D. 120

1.Single File Programming Question

Write a Java program to sort an array of given integers using the Quick sort Algorithm.

Input format

Number of array elements in first-line(N)

Array elements in next line separated by space as shown in sample input

Output format

Display the original array elements and sorted array elements as shown in the sample output.

Sample testcases

Input 1

Output 1

2.What is the output of the following code snippet?

#include<stdio.h>

main()

{

short unsigned int i = 0;

printf("%u\n", (-);

{

Options

0

compile error

65535

32767

3.what will be the output of the following pseudocode

1

2 Integer Funn(Integer a, Integer b, Integer c)

3 for(each c from 2 to 4)

4 b-c&b

5 if((a+c)<(8-a))

6 b=94a

7 a=(a+5) +a

8 else

9 Jump out of the loop

10 End if

11 b=1+a

12 End for

13 return a+b

Note- & bitwise AND-The bitwise AND operator (&) compares each bit of the first operand to the corresponding bit of the second operand. If both bits are 1, the corresponding result bit is set to 1. Otherwise, the corresponding result bit is set to 0.

Ops: A. 11

B.28

C. 8

D.14

4. Constraints

number of students = 5

Input format

The first line contains space-separated strings, the names of the students. The next n (= number of students) lines contains three space-separated integers each, the marks of the student in subject1, subject2 and subject3 respectively.

The next line contains n space separated integers, the current class of the students.

Output format

Refer to the sample output for the exact format

Code constraints

Number of students = 5

Sample testcases

Input 1

John Smith Lenon Mary Lily

35 34 67

21 18 8

36 93 25

37 47 81

Output 1

Added student: Jom to the rell of clas John obtained 35 marks in subjects John obtained 34 marks in subject) John obtained 67 marks in subject)

Added student: Seith to the roll of classic 20

5 Which of the following features in MS PowerPoint is used to set a special start condition for an animation?

A.Trigger

B. Transition

C. Animation Pane

D. Animation Painter

6.Which of the following applications is used for shortening the URL?

Ops:

A. Bitly

B. LinkClump

C. Social Mention

D. Debugger

7.What will be the output of the following C code? #include <stdio.h>

void main()

{

m():

m()

}

void m()

{

static int x = 5;

X++

printf("%d", x);

}

9

11

12

21

8. What will be the output of the following pseudocode?

1.Integer p,q,r

2. Set p=9, q=4, r=5

3. q=(q+r)+r

4. if((r+p)<(p-r) || 4<q)

5 p=r+r

6 r=(r+9)+p

7 else

8 p=(q+p)+p

9 End if

10. Print p+q+r

A.48

B.68

C. 30

D. 50

9.Class A contains two methods namely me and see. Class B Inherits from class A and overrides the see method.

Class C also inherits methods from Class A and overrides the see method. Class B and Class C are both inherited by Class D using the concept of multiple Inheritance.

The context of the given scenario, identify the problem likely generated by the avior of the see method.

Coherence Problem

Diamond Problem

Cohesion Problem

Dexterity probler

10.Alice and the candies

Bunny is a teacher. She wants to give some candies to the children in her class. All the children sit in a fine and each of them has a rating score according to his or her performance in the class. Bunny wants to give at least 1 candy to each child. If two children sit next to each other, then the one with the higher rating must get more candies. Bunny wants to minimize the total number of candies she must buy.

For example, assume her students' ratings are [4, 6, 4, 5, 6, 2]. She gives the students candy in the following minimal amounts: [1, 2, 1, 2, 3, 1]. She must buy a minimum of 10 candies, complete the candies function in the editor below. It must return the minimum number of candies Bunny must buy.

candies has the following parameter(s): n:

an integer, the number of children in the class. arr: an array of integers representing the ratings of each student.

Input Format

The first line contains an integer,n, the size of arr.

Each of the next n lines contains an integer arr[i] indicating the rating of the student at position i.

Constraints

1 <= n <= 105

1<= arr[i]<= 105

Output Format

Output a single line containing the minimum number of candies Bunny must buy.

Sample Input 0

3

11.Problem statement

Implement the following function: int NumberOfBalls(int arr[], int n);

The function accepts a non-negative Integer array 'arr' of size n as argument. Every kth element in array is the number of balls in krow box. Every kth row of the box needs (k+ 1)2 balls, where 0 <= k <=

1). Implement the function to find number of balls required to com each row of the box and return the total number of balls required. Assumption: arr[k] <= (k + 1)²

Note:

Return -1 if array is null(or None in the case of python).

Array indexing starts from 0.

Example:

Input:

arr: 1 2 7 13

12.What is the output for the below code ?

public class Test (

enum Month JAN, FEB, MAR };

public static void main(String...args) {

Month m1 Month.JAN;

Month m2 Month. JAN;

Month m3 Month.FEB;

System.out.println(m1 m2);

System.out.println(m1.equals(m2));

System.out.println(m1 m3);

System.out.println(m1.equals(m3));

}

}

true true true false

true true false false

false false true true

false false false true

13.What router command allows you to determine whether IPaccess list is enabled on a particular interface ?

show ip port

show access-lists

show ip interface

show access-lists interface

14.Predict the output of below programs.

"#include"

"stdio.h"

"int main()

(

float a=0.7d;

if(a<0.7)

printf(""C");

else

printf(""C++"");

return 0:

}

"

"

Compilation error

C++

C

None of these

15."What will be the output of the following statements ?long int a = scanf("" %id%ld",&a,&a); printf("%ld".a);"\*

16.Which of the following clause in SQL that specifies that the query result should be sorted in ascending or descending order based on the values of one or more columns?

View

Order by

Group By

Having

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

import java.util.\*;

public class TestCollection1

{

public static void main(String args[])

{

ArrayList<String> al=new ArrayList<String>(); al.add("Kate");

al.add("Leo");

al.add("Rose");

al.add("Jack");

Iterator itr=al.iterator();

while(itr.hasNext())

{

System.out.println(itr.next() + "1"); itr.next();

Katel

Jack1

Rosel

Leo1

Jack1

Katel

Rosel

18.Ques:

This is a game where there are steps numbered from 0 to the n steps.

You will be on the nth step at the start of the game.

Your goal to reach the 0th step at the end of the game with minimum no of jumps. If the given step's number is even you are allowed to jump n/2 steps below at maximum and if the step no. is odd you are allowed to jump 1 step below. Now find the minimum number of steps required to win this game from the given input.

Sample test case :

10

Output:

5

19. What will be the output of the following pseudocode

1. Integer a, b, c

2. Set a = 0,b=s, cs

3. for(each c from 4 to 7)

4.if((7 + 7) > (c-71)

5 Jump out of the loop

6 End if

7 b = (b + b) + a

8 b = (a + 8) + c

9. End for

10. Print a + b

20.The number of leaf nodes in a complete binary tree of depth d is

Options

2^d

[2^(d-1)]+1

[2^(d+1)]+1

(2^d)+1

21.What type of chart is useful for comparing values over categories

Pie Chart

Column Chart

Line Chart

Dot Graph

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

1. #include <iostream>

2. using namespace std;

3. void fun(int x, int y)

4. {

5. x = 10;

6. y = 11;

7.}

8 int main()

9 {

10 int x = 12;

11 int y =10;

12 fun(x, y);

13 cout << y;

14 return 0;

15 }

23.Identify the correct output of the given code snippet.

int main()

{

int i = 0;

while (i = 0)

printf("True\n");

printf("False\n");

}

True will be printed infinite times

False will be printed once

True will be printed infinite time followed by False once

Compiler dependent

24.What will be the output of the below program?

public class Test (

public static void main(String args[]) {

int[] intArray = new int[] 1,2,3,4,5,6,7,8,9,10 1#

for (int i-1; i<-intArray.length; i++) {

System.out.println (intArray[i]);

}

}

}

a. Will print 1 to 10

b. Will print 1 to 10 and crash

c. Will print 2 to 10

d. Will print 2 to 10 and crash

25. What eill ne the output of the following program

#include<stdio.h>

void f(int a[])

{

int i;

for(i=0; i<3, i++)

a[i]++;

}

main()

}

int i,al= (10, 20, 30).

f(a),

for(i=0; i<3; ++i)

Options

10 20 30

11 21 31

compile error

runtime error

26.What is the purpose of the linking step in building a C program?

Combining separate object code files into a complete

Storing the commands used to build a complete

Turning human readable program statements in

Converting executable code to use on a system compile the code

27.How many times will the print statement be executed:

Integer a, b, c

Set a = 8, b= 10, c = 6

If(a> CAND (b + c) > a)

Print a

end if

if(c> b OR (a + c) > b)

Print b

end if

2

3

1

0

28. Find the output of the following pseudocode

Integer fun(int x, int y)

if(x > 1)

fun(x - 2y + 2)

end if

print y

End function funn

29.Numerical Belly

Analyze the output given in the samples for an input, N. Write a program that prints the similar pattern.

Input:

One line containing an integer, N

Output:

"A pattern of stars and numbers, to be deduced from samples

Constraints:

\* 0<N<999

Sample Input

1

Sample Output

1

1

Sample Input

2

Sample output

1

30.What will be the output of the following pseudocode?

1 Integer a,b,c

2 Set a-5, b-4, c=6

3 for(each c from 5 to 7)

4 if((a+c)>(b-a))

5 b=b+a

6 End if

7 a=(b+5)+c

8 End for

9. Print a+b

A.151

B. 141

C. 146

D. 150

31.Given only a single array of size 10 and no other memory is available. Which of the following operation is not feasible to implement (Given push and pop operation)?

Push

Pop

Enqueue

Returntop

32.What is the output of the following code if base address of array is 63872 and each integer occupies 4 bytes

#include<stdio.h>

int main()

{

int arr[] = {12, 13, 14, 32, 47);

printf(""su"", &arr+1);

return 0;

}

63876

63892

Run Time Error

Compilation Error

33.Problem statement

Prime number: A natural number greater than 1 that has no proper divisors other than 1 and itself is called prime number.

Prime Factors: The prime numbers that divides an integer exactly are called its prime factors. You are given a function, int SumPrimeFactors(int n);

The function accepts an integer 'n' as its argument. You have to implement the function to return sum of all the prime factors of 'n'.

Example:

Input:

n: 20

Output:

7

Explanation:

Prime factors of 20 are 2 and 5. Sum of prime factors = 2+ 5 = 7,

Thus, output is 7.

Sample Input

n.315

Sample Output

15

34. A \_\_\_\_\_ is a virtual table derived from one or more tables.

Trigger

Procedure

View

Table

35.USB is which type of storage device?

Options

Tertiary

Secondary

Primary

Auxillary

36.Algorithms: Elements less than K

Jake is given an array A which contains Wintegers. He is also given an integer K. At each second he can reduce the value of all the elements of the array by 1.

He wants all the array elements to be less than K. Print the number of seconds after which each element of the array will be less than K.

Function Description

In the provided code snippet, implement the provided less Thank (...) method using the variables to print the number of seconds in integer format, after which each element of the array will be less than K. You can write your code in the space below the phrase "WRITE YOUR LOGIC HERE". There will be multiple test cases running so the Input and

Output should match exactly as provided. The base output variable result is set to a default value of -484 which can be modified. Additionally, you can add or remove these output variables.

37.Find the output of the following pseudo-code if x=4

Integer fun(int x, int y)

if(x - 1)

fun(x-2, y + 2)

end if

print y

End function fun()

456

765

975

None of the above

38.What will be the output of the following pseudo code for arr]= 1,2,3,4,5

initialize in

intialize and array of size n

accept the values for the array

for o to n

arr[i] = arr[i]+arr[i+1]

end for

print the array elements

Options

357911

35795

359 15 20

error

39.Problem statement

You are given a function, int\*\* Sort2DArrayByRow(int n, int n, int\*\* arr);

The function accepts a two-dimensional integer array 'arr' of 'm' rows and 'n' columns. Implement the function to return the 2-D array after sorting each row of array 'arr' in ascending order.

Assumptions:

1. m>0 and n>0

2. Array index starts from (0,0).

Note: You need to sort each row in ascending order.

Example:

Input:

3

4

7924

3254

9781

Output:

2479

2345

1789

Explanation:

Sorted the first, second and third row in ascending order

40. Which of the following series will be printed by the given pseudocode?

Integer I, J, K, n

Setj=1, k=1

foreachi from 1 to 5)

l = j+i

k = j+ k

end for

136 10 15

12345

246810

11235

41. What will be the output of the following pseudocode?

1. Integer p, q, r

2. Set p = 6, q = 7, r = 7

3. q = 5 & r

4. q= (p & r) & r

5. if((9 & r) < p && (r^ p) < q)

6. r = (q & 10) + r

7. q (r+q) + q

8. End if

9. r = (q & 10) + r

10. r = 2 + q

11. Print p + q + r

[Note- &&: Logical AND- The logical AND operator (&&) returns the Boolean value true(or 1) if both operands are true and return false (or 0) otherwise.

&: bitwise AND-The bitwise AND operator (&) compares each bit of the first operand to the corresponding bit of the second operand. If both bits are 1, the corresponding result bit is set to 1. Otherwise, the corresponding result bit is set to 0.

42.Which of the following is the correct C# syntax for defining an interface?

set interface IEquatable<T>

{

bool Equals(T obj); }

interface IEquatable<T>

{

bool Equals(T obj);

interface set IEquatable<T>

{

bool Equals(obj T);

}

None of the above.

43.The CUSTOMERS table has the columns cust\_id, cust\_income\_level, cust\_credit\_limit. All you need to do is to generate a report that shows 50% of each credit amount in each income level. The report should NOT show any repeated credit amounts in each income level. Which query would give the required result?

SELECT cust income\_level, DISTINCT cust\_credit limit 0.50

AS "50% Credit Limit"

FROM customers;

SELECT DISTINCT cust income level, DISTINCT cust\_credit limit 0.50

AS "50% Credit Limit"

FROM customers;

SELECT DISTINCT cust income level cust\_credit limit 0.50

AS "50% Credit Limit"

FROM customers;

SELECT cust income level' 'cust\_credit limit 0.50 AS "50% Credit Limit

FROM customers;

44.A data structure in which elements can be inserted or deleted at/from both the ends but not in the middle is?

Queue

Circular queue

Dequeue

Priority queue

45.The maximum number of binary trees that can be formed with four unlabeled nodes is:

16

10

14

12

46. What will be the output of the following pseudocode

1.Integer p, q, r

2.Set p = 6, q = 7, \*\*

3. q = 5 & r

4. q = (p & r) & r

5. if((9 & r) < p && (r^p) <q)

6.r = (q & 10) + r

7. q = (r + q) + q

8. End if

9. r = (q & 10) + r

10. r = 2 + q

11. Print p + q + r

48.What will be the output of the following pseudocode?

1. Integer p,q,r

2. Set p=9, q=4, r=5

3. q=(q+r)+r

4. if((r+p) <(p-r) || 4<q)

5.p=r+r

6.r=(r+9)+p

7.Else

8.p=(q+p)+p

9.End if

10. Print p+q+r

A.30

B. 68

C. 50

D. 48

49.Given below are some of the verified categories of wireless security for data transmission. Which category lies under the verification of sender and receiver's data address before transmission of data to any particular client?

A. Secrecy or Confidentiality

B.Integrity

C. Authentication

D. Service Reliability

E. Networking

50.Which of the following components of transport layer security ensures the organization that the data being shared or access not breached to any other third-party server?

Networking

Integrity

Encryption

Decryption

Authentication

51.The term \_\_\_ designates equipment that might be added to a computer system to enhance its functionality

digital device

system add-on

disk pack

peripheral device

52.Straight line or 0:

Given a set of points in a plane, check whether the points lie on a straight line or not. If the lie in a straight line returns the equation, else return 0.

Input format:

First line contains no. of points in the plane.

Second line contains x,y coordinates of all the points which are divided with spaces.

Output format:

Equation of the line(str) if the points lie on aa plane or 0(str).

53.The sequence logic will not be used while

Options

Accepting input from user

Giving output to the user

Comparing two sets of data

Adding two numbers

54.Problem statement

Implement the following function: int NumberOfBalls(int arr[], int n);

The function accepts a non-negative integer array 'arr' of size n as its argument. Every kth element in the array is the number of balls in the kth row of a box. Every k row of the box needs (k+ 1)2 balls, where 0 <- k <= (n - 1). Implement the function to find the number of balls required to complete each row of the box and return the total number of balls required. Assumption: arr[k] <= (k+ 1)²

Note:

Return-1 if array is null(or None in the case of python).

Array indexing starts from 0.

Example:

Input:

arr: 1 2 7 13

Output:

7

Explanation:

No. of balls each row needs

1

4

9

16

No. of balls each row have

1

2

7

13

Total number of balls required=0+2 +2+3-7. Thus, output is 7.

Sample Input

arr: 03 S

55.What is the output of the following code snippet?

#include<stdio.h>

main()

{

short unsigned int i = 0;

printf("%u\n", i-);

}

compile error

65535

32767

0

56. What will be the output of the c code?

advertisement

#include <stdio.h>

void foo(const int \*).

int main()

{

const int i = 10;

printf("%d", i);

foo(&i);

printf("%d", i);

}

void foo(const int \*i)

{

\*i= 20;

compile time error

10 20

undefined value

10

57. What will be the output of the following pseudocode

1.Integer p, q, r

2. Set p = 1, q = 5, \*\*

3. q = (9^ r) + q

4. q = 8 & p

5. if((p ^r) <q OR 5 > r)

6.q = (11 + 6) & q

7. r = 10 +r

8. Else

9. P = 3 + r

10. P = (p ^ 7) + r

11. End if

12. Print p + q + r

58.Which of the following is the smallest file format for saving animated images?

A.GIF

B.JPEG

C.PNG

D. MPEG

59.Find the odd one out.

Ops:

A. Safari

B.NetBeans

C. Notepad++

D.Visual Studio

60.The prefix of (A+B) (C-D) is

+-AB'(C-D)

\*+-ABCD

+AB-CD

"AB+ CD

61.Problem statement

Implement the following function:

int Count Numbers (int start, int end, int k);

The function accepts three integers 'start', 'end' and 'k' as its argument. Implement the function to count all numbers starting from 'start up to 'end' (both inclusive) whose unit digit is 'k'. Unit digit is the rightmost

digit of a number. Assumption:

start> 0 and end > start

0 <= k <= 9

Note: Return 0 if no such number found.

Example:

Input:

start: 1

end: 45

k: 2

Output

5

Explanation:

5 numbers with unit digit as '2' starting from '1' up to '45' are, 2, 12, 22, 32 and 42. Thus, output is 5.

Sample Input

start: 17

end: 62

k: 5

Sample Output

4

62.#define A 10+10

main ()

{

int a;

a=A\*A;

printf ("%d", a);

}

The answer that would be printed is:

120

200

100

400

63.A-2 Write a function that takes an input parameter as a String. The function should reverse the statement but keep the words intact and print it. Words are separated by dots. (Avoid using inbuilt functions)

If input is "i like this.program very much" Output will be "much.very program.this.like.i"

64.What muter command allows you to determine whether IPaccess list is enabled on a particular interface?

show in port

show ip interface

show access-lists

show access-lists interface

65.What will be the output of the following C code?

advertisement

#include <stdio.h>

void foo(const int "); int main() 1

const int i = 10;

printf("%d ", i);

foo(&i);

printf("%d", i);

}

void foo(const int "i)

(

\*i= 20;

compile time error

10 20

undefined value

10

66.Elevator program(Balance of weights)

#include<stdio.h>

int main() {

int a[6],i=0,s=0,x.n=6;

for(i=0;i<n;i++)

scanf("%d",&a[i]);

for(i=0;i<n-1;i++){

s+=a[i];

if(s ==a[i+1])

x=a[i+1];

}

printf("%d",x);

}

Input:1 23

Output:3

67.\_\_\_\_\_\_\_ is used to show hierarchy in a pseudo code.

Indentation

Curly Braces

Round Brackets

Semicolon

68.What will be the output of the following program?

public class Test (

public static void main(String args[]) {

String x = "Addresses":

String answer = "";

int i;

for (i=0; i<x.length(); i++) {

int count = 0;

for (int j-i; j<x.length(); j++){

if (x.charat (i)=x.charAt(j)) {

count++; break;

}

}

answer + x.charAt fi) Integer.toString (count);

System.out.print (answer);

}

}

a. Ald2r1e1s3e1

b. Ald2d1r1e2s3s2e1sl

c. Aldidirlelslslelsl

d. None of the above

69.What do we achieve by creating prototypes in Software Engineering?

end user understanding and app

program logic

planning of dataflow organization

System Testing

70.What will be the output of the following Code ?

#include<stdio.h>

int main()

(

int n=5, k, 11, 12, f, if (n<2)

return n

else

(

f1 = 12 = 1;

for(k=2;k<n;k++)

f = 11 + 12;

12 = 11;

f1 = f;

}

8

5

13

7

71.Single File Programming Question

Write a program that takes input a number and prints the number of 1's in the binary of that number.

Input format

An integer input in the first line

Output format

Print the number of 1's in the binary of given input

Sample testcases

Input 1

3

Output 1

2

Note:

The program will not be evaluated if "Submit Code" is not done atleast once

Extra spaces and new line characters in the program output will also result in the testcase failing

72.An organization wants to provide services that can be accessed from multiple locations (such as from a corporate office or home using multiple different types of clients (such as a Windows PC or an Android mobile). To do so which of the following cloud characteristics will be useful?

A.Rapid elasticity

B. Cloud

C Broad network access

D. On-demand self-service

E Resource pooling

73.The number of leaf nodes in a complete binary tree of depth d is

2^d

[2^(d-1)]+1

[2^(d+1)]+1

(2^d)+1

74.Find the output of the following pseudo-code if x= 4 and y-5

Integer fun(int x, int y)

if(x > 1)

fun(x-2, y + 2)

end if

print y

End function fun()

456

765

975

None of the above

75.If h is any hashing function and is used to hash n keys in to a table of size m, where neam, the expected number of collisions involving a particum key x is:

less than 1

less than n.

less than m.

less than n/2.

76.Cost price of an item was $250. After giving a discount of 15%, the item was sold at 19% profit. What the item?

A. 350

B. 400

C. 450

D. 320

77.\_\_\_\_\_\_\_ begins with lower case letters.

Keywords

Variables

Tokens

Functions

78.Profit maximization

You are assigned a task to travel to different villages to make some profit. In each village, you gain some profit. From a village i, you can only move to a village, if and only if i<; and the profit gain from village is a multiple of the profit

gain from village.

You are required to determine the maximum profit you can gain while traveling.

Input format

. First line: A single integer N denoting the total number of villages

• Second line: № space-separated integers, each denoting the profit gain P, from village i

Output format

Print the maximum profit you can gain.

Constraints

1≤N≤ 10¹

0≤ P≤ 10⁰

Sample input 1

6

1 2 3 4 9 6

Sample output 1

15.

79. What will be the output of the following pseudocode

1. Integer p, q, r

2. Set p = 5, q = 3, r = 2

3. if(p>>2< p>>1)

4 q = 1

5 if((r+q) >> 1)

6 r = 1

7 Else

8 q = q + r

9 End if

10. End if

11.Print p + q + r

A.1

B. 9

C. 7

D. 24

80.If more than one such duration exists, then print the start and end date of the duration that has the smaller value of start date. If no such duration is found then print an integer -1.

Constraints

0 ≤ num < 5\*104

Note

The type of product consists of Os and 1s only.

Example

Input:

7

1011100

Output:

27

Explanation:

The longest duration for which an equal number of both products were manufactured is from the second day to the seventh day.

81.Find the output of following pseudo code:

int main()

{

int num= 8;

printf ("%d %d", num << 1, num >> 1),

return 0;

}

80

0

164

Error: Can't Perform operation

82.Write a program that will take a string as Input. The program will then determine whether each left parenthesis "(" has a matching right parenthesis ")". If so, the program will print 0 else the program will print 1.

For example,

For the input provided as follows:

HELLO AND (WELCOME (TO THE) TCEA (CONTEST)TODAY) IS (SATURDAY()

The output of the program will be:

0

Another example,

For the input provided as follows:

(9x(7-2)\* (1x5)

The output of the program will be:

1

83.Which of the following software applications would be the most appropriate for performing numerical and statistical calculations?

Options

Database

Document Processor

Graphic Package

Spread Sheet

84.Straight line or 0:

Given a set of points in a plane, check weather the points lie on a straight line or not. If the lie on a straight line return the equation else return 0.

Input format:

First line contains no. of points in the plane.

Second line contains x,y coordinates of all the points which are divided with spaces.

Output format:

Equation of the line(str) if the points lie on aa plane or 0(str)

Sample Input:

3

112233

85.Array Challenge

Have the function ArrayChallenge (arr) take the array of numbers stored in arr and return the second lowest and second greatest numbers, respectively, separated by a space. For example: if arr contains [7, 7, 12, 98, 106] the output should be 12 98. The array will not be empty and will contain at least 2 numbers. It can get tricky if there's just two numbers!

Examples

Input: new int[] (1, 42, 42, 180)

Output: 42 42

Input: new int[] [4, 90)

Output: 90 4

86.1. Import myPackage TestClass.

2. public class TestSubject extends TestClass

3.}

4. public TestSubject ( )

5. { super()

6.)

7. public void getAllDetails ()

8 (super (1

9.)

10.)

loensity the error if any in the given code segment.

A.Line 4

B. Line 5

C. Line 8

D. No Error

87.Problem Statement

Given an array arr of N integers. Find the contiguous sub-array with maximum sum.

Example 1:

Input:

5 // Value of N=5

123-25. // Value of arr[] = {1,2,3,-2,5)

Output:

9

Explanation:

Max subarray sum is 9 of elements (1, 2, 3, -2, 5) which is a contiguous subarray.

88.Problem statement

Infinite number of people are crossing a 2-D plane. They march in such a way that each integral x coordinate will have exactly one person who moves along it in positive y direction, starting from (x, 0). You have to implement the following function: int MaximumBarrier(int n, int\*\* barrier);

The function takes an integer matrix 'barrier' having 'n' rows and '3' columns where n denotes the number of barriers. The th barrier is defined by (x₁, V₁, d), which means that the barrier is blocking all the people who want to pass through points lying on line segment connecting (x, y) and (x +d, y). Once a person encounters a barrier, he stops moving.

Given all the barriers, your task is to find the total number of people who will be blocked at some point in their march.

Assumption:

n > 0

Length of barrier (d) > 0

Note:

Overlapping of barriers is possible.

Do not use extra memory.

Example:

Input:

n: 2

89.Problem statement

Prime number: A natural number greater than 1 that has no proper divisors other than 1 and itself is called prime number.

Prime Factors: The prime numbers that divides an integer exactly are called its prime factors.

You are given a function,

int SumPrimeFactors(int n);

The function accepts an integer 'n' as its argument. You have to implement the function to return sum of all the prime factors of 'n'.

Example:

Input:

n: 20

Output:

7

Explanation:

Prime factors of 20 are 2 and 5. Sum of prime factors = 2 + 5 = 7. Thus,

output is 7.

Sample Input

n: 315

Sample Output

15

90.Convert the infix to postfix for A-(B+C)\*(D/E)

Options

ABC+DE/

ABC-DE/

ABC-DE

None of the above

91.The Greater Than sign (>) is an example of \_\_\_\_ operator.

Options

Arithmatic

Logical

Conditional

Greater

92.In MS Excel, if you want a particular formatting of a cell to be applied on random different cells, then which of the following is the easiest way to do it?

Ops: A. Select the whole sheet and apply the settings

B. Double click on the format painter and apply it on the cells

C. Identify all the format settings and apply them on different cells

D. Copy and paste the

93.what will be the output of the following pseudocode

n = [family members list]

family members = {

each\_familymember: no of children

}

no = ""

for member in n:

if member >= no of children:

no++

94.Write a program that will take a string as input.

The program will then determine whether each

left parenthesis '(' has a matching right parenthesis). If so, the program will print O else the program will print 1.

For example,

For the input provided as follows: HELLO AND (WELCOME (TO THE) TCEA (CONTEST)TODAY) IS (SATURDAYO) The output of the program will be:

0

Another example,

For the input provided as follows:

(9x(7-2)\* (15)

The output of the program will be:

1

95. What will be the output of the following code.

class Solution {

public int jump(int[] nums) {

int n-nums.length;

int steps[]=new int[n]; steps[0]=0;

int i,j;

if(n==0) return 0;

for(i=1;i<n;i++) steps[i]= Integer.MAX\_VALUE;

for(i=1;i<n;i++) for(j=0;j<i;j++){

if(nums[j]>=i-j){

if(steps[i]>steps[j]+1)

steps[i]=steps[j]+1;

}

}

return steps[n-1];

}

Minimum no of jumps

96.What will be the output of the following pseudocode?

1.Integer pp, qq, rr

2. Set pp = 5, qq = 2, rr = 4

3.for(each rr from 2 to 5)

4.if((qq + rr) < (rr - qq))

5.Continue

6.End if

7.pp = 11 + qq

8.pp=(qq + rr) + PP

9.End for

10.Print pp + qq

[Note- Continue: When a continue statement is encountered inside a loop, control jumps to the beginning of the loop fo iteration, skipping the execution of statements inside the body of the loop for the current iteration.]

374

360

357

365

97.Predict the output.

#include<stdio.h>

int main()

{

char xo = '\010';

printf("%d", xo);

return 0;

}

08

010

98. What will be the output of the following pseudocode

1. Integer p, q, r

2. Set p = 6, q = 7, r =7

3. q = 5 & r

4. q = (p & r) & r

5. if((9 & r) < p && (r^ p) < q)

6.r = (q & 10) + r

7. q = (r + q) + q

8. End if

9. r = (q & 10) + r

10. r = 2 + q

11. Print p + q + r

50

52

60

45

99. Sum of audios and videos = 41+67+70+ 55+53 +23+69= 378. Since, memory cards are available in powers of 2 only, minimum size memory card Thus, output is 512.

Sample Input

arr: 4 35 49

Sample Output

64

Instructions :

This is a template based question, DO NOT write the "main" function.

Your code is judged by an automated system, do not write any additional welcome/greeting messages,

"Save and Test" only checks for basic test cases, more rigorous cases will be used to judge your code while scoring.

Additional score will be given for writing optimized code both in terms of memory and execution time.

100. What will be the output of the following pseudocode

1. Integer p,q,r

2. Set p=4, q=7, r=10

3.for(each r from 4 to 6)

4.q=(7+4)+p

5.if((r+p)<(p-r))

6.Jump out of the loop

7. Else

8.r=12+q

9. p=(1+4)+q

10 End if

11. End for

12.Print p + q

A.35

B. 16

C. 047

D. 040

101.Problem statement

You are given a function,

int TransformString(char\* stri, char str2);

The function accepts two strings stri' and 'str? as its argument. Implement the function to find and return minimum number of operations required to transform string 'str1' to 'str2'. The only operation allowed is to pick any character from string 'str1' and insert it at the beginning of string 'str1'.

Assumption: String 'str1' and 'str2' contains only lower case alphabets,

Note:

If string 'str1' and 'str2' are same then return 0.

If string 'str1' cannot be transformed to 'str2' or 'str1' and 'str2' are of different length then return -1.

Example:

Input:

stri: hlole

str2: hello

Output:

3

Explanation:

Pick 'T' from 'str1' and insert it at the beginning then 'str1' become thloe',

Pick 'e' from 'str1' and insert it at the beginning then 'str1' become 'elhlo',

Pick 'h' from 'str1' and insert it at the beginning then 'stri' become 'hello'.

So, only 3 operations will be required.

Sample Input

stri: nimto

str2: minto

102.What will be the output of the following pseudocode for a-9, b-3, -5?

1.

2. Integer funn(Integer a Integer b, Integer c)

3.for(each c from 3 to 5)

4.b=(1+2)&a

5.if((c+b+a)<(a-c))

6. Continue

7. Else

8. Jump out of the loop

9.End if

10.b=(6+7)+a

11.End for

12.return a+b

Note- Continue: When a continue statement is encountered inside a loop, control jumps to the beginning of the loop for next iterati skipping the execution of statements inside the body of the loop for the current iteration.

&: bitwise AND-The bitwise AND operator (&) compares each bit of the first operand to the corresponding bit of the second ope both bits are 1, the corresponding result bit is set to 1. Otherwise, the corresponding result bit is set to 0.

15

7

10

20.

103.What will be value of i

class Operators1

{

public static void main(String[] args)

{

int i=0;

System.out.println(i++);

System.out.println(i);

System.out.println(++i);

}

}

001

012

111

112

104.Single File Programming Question

Write a program that takes input a number and prints the number of 1's in the binary of that number.

Input format

An integer input in the first line

Output format

Print the number of 1's in the binary of given input.

Sample testcases

Input 1

3

Output 1

2

Note:

Program will not be evaluated if "Submit Code is not done atleast once CAMERA Extra spaces and new line characters in the program output will also result in the testcase

105.What is the worst case of serial search for finding the single element in a linked list?

Quadratic Time

Logarithmic time

Constant Time

Linear Time

106.step game:

This is a game where there are steps are numbered from 0 to the steps.You will be on the nth step of the game. Your goal to reach the oth step at the end of the game with minimum no of jumps. If the given step's number is even you are allowed to jump n/2 steps below at maximum and if the step no. is odd you are allowed to jump 1 step below.Now find the minimum number of steps required to win this game from the given input.

Sample Input:

10

Output:

5

107.What will be the output of the following C code?

#include <stdio.h

int main()

{

const int I= 10;

int "ptr = &i; "ptr = 20;

printf("%d\n", 1);

return 0;

}

Compile time error

Compile time warning and printf displays 20

Undefined behaviour

10

108.Implement the below function to print the frequency of non-vowels (characters which are NOT a, e,i, o, u) in a given string and also print the count of vowels (Ignore the character cases, it can be lower or upper case)

The function will take 1 parameter which will be a String (or a character array). You do not have to write code to get the input parameter from the user

int frequency OfNonVowels(String input) [ TODO. Add code here

Example

Input rajasoft Output r=1, j-1, s=1, f-1, 1-1, vowels-3

Input Buffet Output: b=1, f=2, t=1, vowels=2

109.What is the output of the following code

#include<stdio.h>

int main()

{

int arr[3][2][2]{1,2,3,4,5,6,7,8,9,10,11,12);

printf("%d", arr[2][1][0]);

}

10

Run time Error

11

Compilation Error

110.Which one of the following statements is FALSE regarding loops in C?

It is mandatory to have a semicolon at the end of a do-while block

Compiler throws an error if it doesn't find three semi-colons inside a for condition (for expression lati

It is not possible to use a continue statement inside a do-while loop

The do-while loop executes at least once irrespective of the condition specified to run the loop.

111.While playing with the number system, Nobita found some interesting numbers and named them Nobita's numbers. A number is considered to be Nobita's number if all adjacent digits in the number have an absolute difference of 1.

Write a program to find the sum of all of Nobita's numbers within a given range [X, Y]

Read the input from STDIN and print the output to STDOUT. Do not write arbitrary strings anywhere in the program, as these contribute to the standard output and test cases will fail.

Constraint:

10 <=X<=Y<= 107

Input Format:

The input contains X and Y, separated by a single white space.

Output Format:

The output should contain the sum of all of Nobita's numbers in the given range.

Sample Input1:

123 456

112.Identify the vector graphics editors from the following.

1 Adobe Illustrator

2. CorelDRAW

A Neither 1 nor 2

B. Only 2

C. Only 1

D. Both 1 and

113.Find the output of following pseudo code

int main()

{

int num=8,

printf("%d %d", num << 1, num >> 1);

return 0

}

16 4

Error Can't Perform operation

8 0

0 0

114.What will be the output of the following pseudo code

initialize in

intialize and array of size n

accept the values for the array

for o to n

arr[i] = arr[i]+arr[i+1]

end for

print the array elements

3 5 7 9 5

3 5 7 9 1 1

3 5 9 15 20

error

115.The term "push" and "pop" is related to the

Options

Array

Lists

stacks

all of above

116.Write a function which takes an input parameter as an array of integers and prints the sum of all prime numbers from the given array. If all integers present in the input array are non-prime the program should print sum as 0

Example:

Input1: [1, 14, 5, 7]

Output sum=12 Input2: 12, 10, 13.9)

Output: sum=15.

117.What will be the output of the following pseudocode?

1. Integer a, b, c

2. Set a = 2, b = 2, c =8

3. if((a + c) < (c + a))

4. a = a + b

5. End if

6. if((a^ b^7) < (b ^ c^ 7))

7. b = 1^ c

8.b = 12 + b

9. End if

10. Print a + b + c

A.26

B. 40

C. 31

D. 32

118.Find the size of the second largest sequence of vowels in a given string

sample test casel:

input: ramioutait

Output: 2

sample test case2:

Input: continuous

output: 1

119.Predict the output of below programs.

"#include <stdio.h>

int main(void)

{

char p:

char buf[10] = {1, 2, 3, 4, 5, 6, 9, 8);

p = (buf + 1)[5];

printf("%d"". p);

return 0;

}

"

\*

5

6

9

Error

120.What will be the output of the following pseudocode?

Integer a, b

Set a = 15, b = 7

a = a mod (a - 3)

b = b mod (b-3)

a = a mod 1

b = b mod 1

Print a + b

15

7

2

0

121.Which of the tailowing line spacing is invalid?

Multiple

Double

Triple

Single

122.Problem statement

Prime number: A natural number greater than 1 that has no proper divers other than I and itself is called prime number.

Prime Factors: The prime numbers that divides an integer exactly are called its prime factors.

You are given a function,

int Sorinefactors(int n);

The function accepts an integer 'n' as its argument. You have to implement the function to return the sum of all the prime factors of 'n'.

Example:

Input:

n: 20

Output:

7

Explanation:

Prime factors of 20 are 2 and 5. Sum of prime factors = 2 + 5 = 7. Thus,output is 7.

Sample Input

n: 315

Sample Output

15

123.The term \_\_\_\_\_ designates equipment that might be added to a computer system to enhance its functionality

digital device

system add-on

disk pack

peripheral device

124.With the given the information provided find out the address of An[17] in a 1-0 aray Amag

-lower bound=1

-starting base address = 1100

-size of each element is 2.

1070

1128

1068

1132

125.A features that displays only the data in column(s) according to specified columns

Formula

Sorting

Filtering

Pivot

126.What will be the output of the following pseudocode?

1.Integer pp,qq,rr

2.Set pp=3, qq=8, rr=4

3.for(each rr from 4 to 7)

4.pp=9+rr

5.if((qq-7)<(7+qq))

6.Jump out of the loop

7.Else

8.rr=rr+qq

9.pp=pp&qq

10.End if

11.End for

12.Print pp+qq

Note- &: bitwise AND- The bitwise AND operator (&) compares each bit of the first operand to the corresponding bit of the second operand. If both bits are 1, the corresponding result bit is set to 1. Otherwise, the corresponding result bit is set to 0.

A.21

B. 15

C.26

D.40

127.In a distributed computer system

there are many computers a

the task is executed by a nun

the task is distributed through

Everything is done on a single

128.USB is which type of storage device?

Options

Tertiary

Secondary

Primary

Auxiliary

129.Let the following circular queue can accommodate maximum six elements with the following data

front = 2 rear = 4 queue= \_\_\_\_\_, L, M, N,\_\_\_\_,\_\_\_\_

What will happen after ADD O operation takes place?

front = 2 rear = 5 queue=\_\_\_\_\_\_\_\_,L, M, N, O,\_\_\_\_\_

front =3 rear = 5 queue = L, M, N, O,\_\_\_

front = 3 rear = 4 queue=\_\_\_\_\_\_\_\_\_ L, M, N, O,\_\_\_

front = 2 rear = 4 queue = L, M, N, O,\_\_\_\_\_

130.6,8,4,3 and 1 are inserted into a data structure in that order. An item is deleted using only a basic data structuos operation if the deleted item is a 1, the data structure cannot be a ?

Queue

Tree

Stack

Hash Table

131.What could be the result of the below for loop snippet?

#include <stdio.h>

#include <stdlib.h>

int main(void) {

int i, j;

int \*\*p (int \*\*)malloc(2 sizeof(int \*));

p[0] (int)malloc(2 sizeof(int));

P[1] p[0];

for (i = 0; i < 2; i++)

for(j = 0; j < 2; j++)

P[i][j] = i+j;

printf("%d",p[@][0]);

return 0;

}

132.A detailed flowchart is called \_\_\_\_

Options

Stack

Macro

Micro

Union

133.What will be the output of the following pseudo code for arr[]=1

initialize in

initialize and array of size n

accept the values for the array

for o to n

arr[i] = arr[i]+arr[i+1]

end for

print the array elements

3 5 7 9 5

3 5 7 9 1 1

359 15 20

error

134.What router command allows you to determine whether IPaccess list is enabled on a particular interface?

show ip port

show access-lists

show ip interface

show access-lists interface

135.Straight line or 0:

Given a set of points in a plane, check whether the points lie on a straight line or not. If the lie on a straight line returns the equation, else return 0.

Input format:

First line contains no. of points in the plane.

Second line contains x,y coordinates of all the points which are divided with spaces.

Output format:

Equation of the line(str) if the points lie on aa plane or 0(str).

Sample Input:

3

112233

Output:

1x-1v=0

136.Time taken for addition of element in queue is

Options

O(1)

O(n)

O(log n)

None of these options

137.Write a program that will take a string as input The program will then determine whether each left parenthesis "Chas a matching right parenthesis). If so, the program will print else the program will print 1.

For example,

For the input provided as follows:

HELLO AND (WELCOME (TO THE) TCEA (CONTEST)TODAY) IS (SATURDAY())

The output of the program will be:

0

Another example,

For the input provided as follows:

(9x(7-2)\*(1x5)

The output of the program will be:

1

138.Let A be a square matrix of size nx n. Consider the following program. What is the expected output?

C = 100

for i=1 to n do

for j = 1 to n do

{

T = A[i][j] + C

A[i][j] = A[j][i]

A[i][j] = T + C

}

for i=1 to n do

for j = 1 to n do

Output (A[i][j])

The matrix A itself

Transpose of matrix A

Adding 100 to the upper diagonal elements and subtracting 100 from diegnel elements of A

None

139.Find the output of following pseudo code:

main()

{

int x;

if (x>4) printf("Brinda");

else if (x > 10) printf("Karthik");

else if (x > 21 ) printf(" Pradeep");

else printf("Sandeep");

}

What will be the value of x so that "Karthik" will be printed?

Options

From 10 to 21

From 11 to 21

greater than 10

none

140. What will be the output of the following pseudocode

1. Integer p, q, r

2.Set p = 6, q = 6, r = 8

3. if((r^ p) < q && (q & p) <p)

4.q = (r + r) ^ P

5.End if

6 Print p + q + r

141.What will be the output of the given pseudocode?

integer x = 5, y = 4, z

z = x>y?x-y:x+y

print z

23.What will be the output of the following pseudocode for a-9, b-3, c=6?

1.

2. Integer funn(Integer a, Integer b, Integer c)

3. for ( each c from 5 to 7)

4. a=(b+c)+b

5. if((5+8)>(a+5))

6. Continue

7. Else

8. Jump out of the loop

9. End if

10. a=(c^10)+b

11. End for

12. return a+b

Note- Continue: When a continue statement is encountered inside a loop, control jumps to the beginning of the loop for next iteration, skipping the execution of statements inside the body of the loop for the current iteration. ^ is the bitwise exclusive OR operator that compares each bit of its first operand to the corresponding bit of its second operand. If one bit is 0 and the other bit is 1, the corresponding result bit is set to 1. Otherwise, the corresponding result bit is set to 0.

24

6

14

23

24.You are given an implementation of a function: class Solution (public int solution(int M, Int() A))

that, given an integer M and an array A consisting of N non-negative integers which are not greater than M, returns the value (or one of the values) that occurs most often in this array.

For example, given M-3 and array A such that:

A[0] =1

A[1]=2

A[2] =3

A[3]=3

A[4]=1

A[5]=3

A[6]=4

the function may return 1 or 3.

The attached code is still incorrect for some inputs. Despite the error(s), the code may produce a correct answer for the example test cases. The goal of the exercise is to find and fix the bug(s) in the implementation. You can modify at most four lines.

Assume that:

N is an integer within the range [1..200,000)

M is an integer within the range (1..10,000

each element of array A is an integer within the range (0.M).

In your solution, focus on correctness. The performance of your solution will

25.Problem statement

You are required to implement the following function: def MinMaxInTwoArrays (arri, arr2, k);

The function accepts two integer arrays 'arri' of length "lend', 'arr2' of length "len2' and an integer 'k' as its arguments. Let the count of numbers greater than 'k' in array 'arri' be 'x' and the count of numbers lesser than 'k' in array 'arr2' be 'y'. You are required to return the maximum of 'x and y' from the function.

Assumption: 'len1', 'len2'>0 Example

Input:

amr1: 9 16 12 5 15

am2: 14 7 22 5 32 77

k: 9

Output:

3

Explanation

3 integers in the array { 9, 16, 12, 5, 15) are greater than 9, 2 integers in the array { 14, 7, 22, 5, 32, 77} are lesser than 9. Hence, 3. is returned.

The custom input format for the above case:

5

9 15 12 5 15

6

14 7 22 5 32 77

9 (The first line represents the size of 'arr1', the second line represents the elements of 'arr1', the third line represents the size of 'arr2', the fourth line represents the elements of 'arr2', the fifth line represents 'k')

3 integers in the array (9, 16, 12, 5, 15) are greater than 9, 2 Integers in the array ( 14, 7, 22 5 17 77 1 are lesser then 9. Hence, 3 s returned.

The custom input format for the above case:

5

9 16 12 5 15

6:

14 7 22 5 32 77

9

(The first line represents the size of 'arr1', the second line represents the elements of 'arr1', the third line represents the size of 'arr2", the fourth line represents the elements of 'arr2', the fifth line represents 'k')

Sample Input

arr1: 1 5 7 22 6 6 8 arr2: 14 7 22 5 32 77 12 4

k: 20

Sample Output

5

The custom input format for the above case:

7

15 7 22 6 68

8

14 7 22 5 32 77 12 4

20

(The first line represents the size of 'arr1', the second line represents the elements of 'arrl', the third line represents the size

of arr2', the fourth line represents the elements of arr2', the fifth line represents 'k')

26.1.findMinimumCityByPinCode

Create a method findMinimumCityByPinCode in the District class. This method will return the City having the minimum value for pinCode of all the Cities in the City List of the District class. If there is no City found in the City List or list is empty then return NONE to main program.

sortCityByPopulation

Create a method sortCityByPopulation in the District class. This method will return the City sorted list for population in ascending order of all the Cities in the City list of the District class. If there is no City found in the City list then return NONE to main program.

These methods should be called from the main method.

Instructions to write main section of the code:

a. You would require to write the main section completely, hence please follow the below instructions for the same.

b. You would require to write the main program which is inline to the sample input description section mentioned below and to read the data in the same sequence.

c. To create District and City objects, take the inputs in below sequence.

To create a List of n City objects read the value of

n.

To create a List of n City objects read values for pinCode, name, population, area (in this order) and create the City object and add to the List. Repeat this step n times.

27.You are given an implementation of a function: class Solution (public int solution(int M, Int() A))

that, given an integer M and an array A consisting of N non-negative integers which are not greater than M, returns the value (or one of the values) that occurs most often in this array.

For example, given M-3 and array A such that:

A[0] =1

A[1]=2

A[2]=3

A[3]=3

A[4]=1

A[5]=3

A[6]=1

the function may return 1 or 3.

The attached code is still incorrect for some inputs. Despite the errors), the code may produce a correct answer for the example test cases. The goal of the exercise is to find and fix the bug(s) in the implementation. You can modify at most four lines.

Assume that:

N is an integer within the range [1..200,000)

M is an integer within the range (1..10,000 each element of array A is an integer within the range (0.M)

In your solution, focus on correctness. The performance of your solution will.

28. What will be the output of the following pseudocode

1.

2. Integer funn(Integer a, Integer b, Integer c)

3.for(each c from 3 to 5)

4. b=b^a

5 if((b-arc)(cb))

6.Continue

7.Else

8.a-b+c

9.End if

10.End for

11.return a+b

12. End function funn()

A.48

B. 29

C. 24

30.What will be the output of the following pred 11,04

1.

2. Integer funn(Integer a, Integer b, Inter

3.b=(149)+b

4.b-(b+18)+c

5.C=a+b

6.c=(a+c)&a

7.return arbic

8. End function funn()

A.50

B. 27

C. 32

D. 31

31. What will be the output of the following pseudocode

1.integer p,q,r.

2.set p=8,q=8,r=5.

3. p = (2+12)^q

4 P=(18+8)&p

5. if((p&r&q)<(35))

6.r=5+r

7. End if

8. Print p+q+r

A.22

B. 8

C. 32

D. 20

32.What will be the output of the following pseudocode

1. Integer p,q,r

2. Set p-8, q-2, r=9

3. for(each r from 2 to 3)

4.if((q+r)<(p-q))

5.p=(q+r)+p

6.p=(r+3)+p

7.End if

8. End for

9. Print p+q

A.25

B. 30

C. 33

D. 40

33. What will be the output of the following pseudocode

1.

2. Integer funn(Integer a, Integer b, Integerc)

3.for(each c from 4 to 5)

4.if((b&5)<a)

5.jump out of the loop

6.end if

7.b=b+b

8.b=(9+10)+b

9.End for

10.return a+b

11. End function funn()

A.74

B. 66

C. 86

D. 73

34.Problem statement

You are required to implement the following function:

int LastDigitAPowerB(int a, int b);

The function accepts 2 integers 'a' and 'b' as its arguments. You are ab required to calculate the last digit of a, for bigger values of 'a' and 'b', and return the same.

Note:

a,b≥ 20

a⁰= 1, where 'a' > 0

Example:

Input:

a:6

b: 14

Output:

6

Explanation:

Since 6¹4 is 78364164096 and the last digit of 78364164096 is 6, hence 6 is returned.

The custom input format for the above case:

a:14

b:10

(The first line represents 'a', the second line represents 'b')

Sample Input

6

Sample Input

A: 14

b: 10

Sample Output

6

The custos input format for the above case:

(The first line represents 'a', the second line

35.Problem statement

Proper divisor: A proper divisor of a positive integer is any divisor other than itself.

Let the sum of proper divisors of 'n' be defined as f(n)= a, and the sum of proper divisors of 'a' be defined as f(a) = m. When 'n' and 'm' are equal, 'n' is called an 'amicable' number. You are required to implement the following function:

This function returns:

1, if 'n' is an 'amicable' number 0, otherwise

Assumptions

n>0

There are no proper divisors of 1.

Example

Input:

220

Output:

1

Explanation:

The proper divisors of 220 are 1, 2, 4, 5, 10, 11, 20, 22, 44, 55 and 110. Thus, f(220) = 284. The proper divisors of 284 are 1, 2, 4, 71 and 142. Since f(284) = 220, hence 1 is returned.

The custom input format for the above case:

220

(The line represents the number)

Sample Input

221

Sample Output

The custom input format for the above case:

221

(The line represents the number)

36.The Wall

Given an array A[O...N+1], consider the indices [1...N] as spots for the soldiers and index 0 as the left tower and the index N+1 as the right tower. The Kth spot is K miles far from the left tower and (N+1-K) miles from the right tower.

Initially set A[0] = 1, A[N+1) = 1 and rest all have Os.

When a soldier occupies a spot, he is connected to his nearest soldier already placed to his left. If there is no soldier to his left, he is connected to the left tower. The same is the case with the right side. A connection between two spots requires a wire of length equal to the distance between the two.

Given a permutation P[1...N] of the indices (1, 2N), we fill them with 1s in that order and find the length of used wire. You can see that the used\_length depends on the permutation P and given an integer M, we need to find the minimum length of unused wire Le minimize the length of the unused wire. It is same as asking for the maximum possible used\_length s M for some permutation P

If Mis not sufficient for any permutation P, output-1.

Input:

Each of the next lines contains two integers N M, as explained in the problem statement (15

NS 30.1: Ms 1000)

Output:

For each test case, output the minimum length of the unused wire, or-1 if the the wire is not

sufficient.

Input:

4

37.What will be the output of the following pseudocode?

1. Integer p.q.r

2.Set p=3, q=6, r=9

3. r=q^q

4. for(each r from 5 to 9 )

5.q=3+q

6.if((q+10)>(p-q) || 1>q)

7 q=9+r

8 q=7+p

9.Continue

10.End if

11. End for

12. Print p+q

A.16

B. 13

C. 23

D. 11

38. What will be the output of the following pseudocode

1. Integer p,q,r

2. Set p=8, q=8, r=5 3. p=(2+12)^q

4. p (10+8)&p

5. if((p&r&q)<(3^q^5))

6.r=5+r

7. End if

8. Print p+q+r

A.32

B. 22

C. 8

D. 20

39. What will be the output of the following pseudocode

1.Integer a,b,c

2. Set a-5, b=3, c=10

3. b=1+b

4. if((5&a)<(c^5))

5.a=(a+12)+c

6. End if

7. Print a+b+c

Note &: bitwise AND- The bitwise AND operator (&) compares each bit of the first operand to the corresponding bit of the second operand. If both bits are 1, the corresponding result bit is set to 1. Otherwise, the corresponding result bit is set to 0.

^ is the bitwise exclusive OR operator that compares each bit of its first operand to the corresponding bit of its second operand. one bit is 0 and the other bit is 1, the corresponding result bit is set to 1. Otherwise, the corresponding result bit is set to 0.

41

42

40

49.

40. What will be the output of the following pseudocode

1. Integer a,b,c

2. Set a=8, b=6, c=7

3. c=4^C

4. if((c&9&b)<(7&c))

5 a=b^c

6 C=C+a

7 End if

8. Print a+b+c

Note- &: bitwise AND-The bitwise AND operator (&) compares each bit of the first operand to the corresponding bit of the second operand. If both bits are 1, the corresponding result bit is set to 1. Otherwise, the corresponding result bit is set to 0.

^ is the bitwise exclusive OR operator that compares each bit of its first operand to the corresponding bit of its second operand. If one bit is 0 and the other bit is 1, the corresponding result bit is set to 1. Otherwise, the corresponding result bit is set to 0.

ps: A. 13

B. 20

C. 32

D. 19

41.Problem statement

You are given a function,

int GetTotalPoints(int a, int b, int c, int d);

The function accepts integers 'a', 'b', 'c' and 'd' as input. Cards of the deck are represented as follows: (Ace:1, 2:2, 3:3, 4:4, 5:5, 6:6, 7:7, 8:8, 9:9, 10:10, Jack: 11, Queen:12, King:13). 'a', 'b', 'c 'and 'd' form a set of 4 cards of a deck. In a card game called "Twenty-Nine', the points associated with each card is:

Face card Jack has 3 points each. Cards with the number 9 have 2 points each. .

Aces have 1 point each. Cards with the number 10 have 1 point each.

Rest of the cards have a value of 0 points each.

Implement the function to compute and return the total points of a given set of cards, by adding the points associated with each card. Note: 1 <- a, b, c, d <- 13

Example

Input:

11

9

1

5

Output:

6

Explanation:

Set of cards:

11 represents a Jack

9 represents a 9 numbered card

42.How to attempt? Question

String within String

Given two strings, X' and 'Y' (length(X) >= 1, length(Y) <=10000), find out if "Y is contained in 'X.

Return y'Y' is contained in "X", "no", if not.

Input Specincation:

input1, the string "X

input2 the string 'Y'

Output Specification:

Return "yes" if string "Y" is contained in string "X", else, return "no"

43.Problem statement

Hide problem statement e

(The first line represents 'a', the second line represents t

You are required to implement the following function: int LastDigitAPowerB(int a, int b);

The function accepts 2 integers 'a' and 'b' as its arguments. You are required to calculate the last digit of ab, for bigger values of 'a' and 'b', and return the same.

Note:

a, b 20

a⁰= 1, where 'a'>0

Example: Input:

a: 6

b: 14

Output:

6

14.

Explanation:

Since 6¹⁴ is 78364164096 and the last digit of 79364164096 is 6, hince 6 is returned.

The custom input format for the above case:

Sample Input

a:14

b: 10

Sample Output

6

44.Correct syntax for specifying image in HTML 5.

Select one:

<figure><img src="img\_pulpit.jpg" alt="The Pulpit Rock' width="304" height="228"></figure>>

<figure src="img.pulpit.jpg" alt="The Pulpit Rock" width="304" height="228"></figure>

All of the options.

<img src="img-pulpit.jpg" alt="The Pulpit Rock" width="304" height="228">

45.Autofocus attribute always set focus on first input field in HTML5.

Select one:

True

False

46.CSS3 does not support multiple columns for laying out text

Select one:

True

False

47.What is the correct format of defining background image in CSS3?

Select one:

All of the listed options

background:img\_flwr.gif;

background:url(img\_flwr.gif);

background: (url:img\_flwr.gif);

48. What will be the output of the following pseudocode.

function main()

{

integer i = 0.7

static float m = 0.7

if (m equalsi)

print "We are Equal"

else if (m>i)

print "I am Greater"

else

print "I am Lesser"

}

49.What will be the output of the following pseudocode

1. Integer p,q,r

2.Set p=2, q=8, r=10

3.for (each r from 2 to 5)

4.p=p+p

5.if((p&r)<(q-p))

6.Continue

7.Else

8.r=(4+2)+r

9.p=(p+p)+r

10.End if

11.End for

12.Print p+q

A.038

B. 033

C. 032

D. 035

50.Consider a circular queue of size 3 which is initially empty and perform below operations.

Enqueue(2), Enqueue (1), Enqueue (4), Dequeue(), Dequeue(), Enqueue(3), Dequeue(), Dequeue()

What will be the sequence of dequeued elements after above operations?

4312

2314

2143

4123

51.What will be the infix expression of the given postfix expression?

AB CD-EF/GH+/+\*

A^B+((C-D)\*(E/F)/(G+H))

(A^B\*C-D)+(E/F)/(G+H)

A B+(C-D)/(E/F)^(G+H)

A^B\*((C-D) + (E/F)/(G+H))

52. Which of the below given statement(s) is/are true about an interface?

1) It is used to achieve multiple inheritance.

II) It is used to achieve loose coupling.

Neither (1) nor (11)

Only (II)

Only (1)

Both (1) and (II)

53.What will be the output of the program given below?

class Typical

static void HereWeGo (Byte x, Byte y) System.out.println("Byte, Byte");

static void HereWeGo (Byte... x)

System.out.println("Byte"); static void HereWeGo (byte x, byte... y)

( System.out.println("byte"); public static void main(String[] args)

byte b1 = 5;

Byte b2 = 2;

HereWeGo (b1,b2);

54.What will be the return value of the function display(3, 2)?

int display (int x, int y)

{

if (y < 0)

{

return 0;

}

else

if (y == 0) return (1);

else

return (x \* display(x, y - 1));

55.What will be the output of the program given below?

public class Sing

{

public String returnstring()

return "String": 1

public static void main(String args[])

System.out.println(new x().returnstring()y().

returnString());

class x extends Sing

@Override

public string returnString()

return new String ("CON");

class y extends x

(

@Override

56.Given program:

public class Score extends Player

{

public static void main(String args[])

new Score ().round1();

void round1 ()

round2 (new Player (), new Score());

round2 ((Score) new Player(), new score()); // Line 2

}

void round2 (Player player, Score score)

Score score1= (Score) player; // Line 3

Player player= (Player) score;

class Player