**1. What will be the output of following code :**

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

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

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

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

A. It transposes the given matrix A

B. It does not alter the given matrix.

C. It makes the given matrix A, symmetric

D. None of the above.

Ans. A

**2. What is the output of given code :**

#include<stdio.h>

int main()

{

long double a;

long double b;

int arr[sizeof(!a+b)];

printf(“%d”,sizeof(arr));

}

A. Run time Error

B. 32

C. 64 with warning

D. No output

Ans. C

**3. Which of the following statements is true regarding, Auto Storage Class ?**

A. It is used to give a reference of a global variable that is visible to all program files.

B. It instructs the compiler to keep a local variable in existence during the lifetime of a program.

C. It is the default storage class for all local variables.

D. It is used to define local variables that should be stored in a register.

Ans. C

**4. What is the output of given code :**

#include<stdio.h>

int main()

{

int x =4, y = 0;

int z;

z = (y++, y);

printf(“%d\n”, z);

return 0;

}

A. 1

B. 0

C. Undefined Behavior due to order of evaluation can be different.

D. Compilation Error

Ans. A

**5. What is the output of given code :**

#include<stdio.h>

int main()

{

int ch;

print(“Enter a value between 1 & 2”);

scanf(“%d”, &ch);

switch(ch, ch+1)

{

case 1 :

printf(“1\n”);

break;

case 2 :

printf(“2\n”);

break;

default :

printf(“3\n”);

}

A. 1

3

B. Error : Undefined condition in switch

C. 1

D. No output

Ans. C

**6. What is the output of given code for input 134 :**

int fun1(int num)

{

static int a =0;

if (num>0)

{

a=a+1;

fun1(num/10);

}

else

{

return a;

}

}

A. 2

B. 3

C. Runtime Error

D. None of these

Ans. B

**7. What will be output of given pseudo code for input 7 :**

1. read the value of n

2. set m=1,t=0

3. if m >= n

4. go to line 9

5. else

6. t=t+m

7. m+=1

8. go to line 3

9. display T

10. stop

A. 32

B. 76

C. 56

D. 28

Ans. D

**8. What will be output of given pseudo code for input 2 :**

int fun(int n)

{

if(n == 4)

return n;

else

return 2\*fun(n+1);

}

A. 4

B. 8

C. 16

D. Error

Ans. C

**9. What will be output of given pseudo code :**

int i=5, j=7;

if ( i+j> 5)

j = i+2;

if ( j<5 )

print(i)

else

print(j)

else

print(i+1)

A. 12

B. 5

C. 7

D. 6

Ans. C

**10. What will be output of given pseudo code :**

int j=41, k= 37

j=j+1

k=k-1

j=j/k

k=k/j

print(k,j)

A. 42 36

B. 36 1

C. 1 1

D. 1 36

Ans. C

**11. What will be output of given pseudo code :**

#include<stdio.h>

using namespace std;

int main()

{

int a =0,b=1,c=2;

\*( ( a+1==1) ? &b : &a)= a? b : c;

printf(“%d, %d, %d \n”, a , b, c );

return 0;

}

A. 0 1 2

B. 0 2 0

C. 0 2 2

D. Error

Ans. C

12.

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

Ans. A

13.

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

Ans. D

**14. What will be the output of the following code :**

integer a = 984, b=10

float c

c = a / b

print c

A. 984

B. 98.4

C. 98

D. Error

Ans. B

**15. Consider the following code:**

if (condition 1) {

if (condition 2)

{ // Statement A } else

if (condition 3)

{ // Statement B} else

{// Statement C } else

if (condition 4)

{// Statement D}

else

{// Statement E}

}

Which of the following condition will allow execution of statement A?

A. NOT(condition2) AND NOT(condition3)

B. condition1 AND condition4 AND NOT(condition2) AND NOT(condition3)

C. condition1 AND condition2 AND condition4

D. NOT(condition1) AND condition2 AND NOT(condition4)

Ans. C

**16. What will be the output of following code :**

#include<stdio.h>

int main()

{

int num = 8;

printf (“%d %d”, num << 1, num >> 1);

return 0;

}

A. 8 0

B. 0 0

C. 16 4

D. Error : Can’t Perform operation

**17. What will be the output of following code :**

#include<stdio.h>

int main(){

int i = 16;

i =! i > 15;

printf(“i = %d”,i);

return 0;

}

A. i = -1

B. i = 0

C. i = 1

D. Error : Undefined operation

Ans. B

**18. What will be the output of following code :**

#include<stdio.h>

int main()

{

int x[10] = {0, 1, 2, 3, 4, 5, 6, 7, 8, 9};

printf(“%d”,sizeof(x));

return 0;

}

A. 40

B. 10

C. 20

D. Error

Ans. A

**19. What will be the output of following code :**

#include<stdio.h>

int main()

{

int x = 2;

(x & 1) ? printf(“true”) : printf(“false”);

return 0;

}

A. true

B. false

C. 0

D. Error

Ans. B

**20. What will be the output of following code :**

#include<stdio.h>

int main()

{

int a = 4, b = 2;

printf(“a^b = %d”, a^b);

return 0;

}

A. 4

B. 1

C. 0

D. 16

Ans. D

**21. What will be the output of following code :**

#include<stdio.h>

int main()

{

int a = 4, b = 2;

printf(“a|b = %d\n”, a|b);

return 0;

}

A. 4

B. 1

C. 0

D. 6

Ans. D

**22. What will be the output of following code :**

#include<stdio.h>

int main()

{

int a = NULL – true;

printf(“%d”,a);

return 0;

}

A. -1

B. Garbage value

C. 0

D. Error

Ans. -1

**23. What will be the output of following code :**

#include<stdio.h>

int x = 0;

int main(){

if(x == x)

printf(“if”);

else

printf(“else”);

return 0;

}

A. Two same variables can not be compared

B. ifelse

C. else

D. if

Ans D

**24. What will be the output of following code :**

#include<stdio.h>

#define FALSE -1

#define NULL 0

#define TRUE 1

int main(){

if(NULL)

printf(“NULL”);

else if(FALSE)

printf(“TRUE”);

else

printf(“FALSE”);

return 0;

}

A. TRUE

B. FALSE

C. NULL

D. Error

Ans. A

**25. What will be the output of following code :**

#include<stdio.h>

int main(){

int i;

if(true)

printf(“work”);

else

printf(“not work”);

return 0;

}

A. work

B. not work

C. compiler error

D. runtime error

Ans. A

**26. What will be the output of following code :**

#include<stdio.h>

int main()

{

if(printf(“0”))

printf(“inside if block”);

else

printf(“inside else block”);

return 0;

}

A. inside else block

B. 0

C. 0inside if block

D. Error – If can not have print statement

Ans. C

**27. What will be the output of following code :**

#include<stdio.h>

int main(){

int i = 5, j = 4;

if(!printf(“”))

printf(“%d %d”, i, j);

else

printf(“%d %d”, i++, ++j);

return 0;

}

A. 5 5

B. 5 4

C. 5 6

D. 6 6

Ans. B

**28. What will be the output of following code :**

#include<stdio.h>

int main()

{

int i = 25;

if(i == 25);

i = 50;

if(i == 25)

i = i + 1;

else

i = i + 1;

printf(“%d”, i);

return 0;

}

A. 51

B. 25

C. 50

D. None of these

Ans. A

**29. What will be the output of following code :**

#include<stdio.h>

int main()

{

if(sizeof(0))

printf(“Hai”);

else

printf(“Bye”);

return 0;

}

A. 2

B. Bye

C. Runtime Error

D. Hai

Ans. D

**30. What will be the output of following code :**

#include<stdio.h>

int main()

{

if(sizeof(‘\0’))

printf(“inside if block”);

else

printf(“inside else block”);

return 0;

}

A. inside if block

B. inside else block

C. Null Pointer Exception

D. None of these

Ans. A

**31. What will be the output of following code :**

#include<stdio.h>

int main()

{

int i = 65;

switch(i)

{

case 65:

printf(“Integer 65”);

break;

case ‘A’:

printf(“Char 65”);

break;

default:

printf(“Bye”);

}

return 0;

}

A. Integer 65

B. Char 65

C. Bye

D. Error : Duplicate Values

Ans. D

**32. What will be the output of following code :**

#include<stdio.h>

int main()

{

switch(2/3)

{

case 1:

printf(“case 1 executed “);

case 2:

printf(“case 2 executed “);

break;

default:

printf(“Default block executed”);

}

return 0;

}

A. case 1 executed

B. case 2 executed

C. Default block executed

D. Error : Switch statements can not hold

Ans. C

**33. What will be the output of following code :**

#include<stdio.h>

int main()

{

int i = 1;

switch(i)

{

case i:

printf(“case 1 executed”);

break;

case i + 1;

printf(“case 2 executed”);

break;

default:

printf(“default block executed”);

break;

}

return 0;

}

A. case 1 executed

B. case 2 executed

C. default block executed

D. Error : i is not usable

Ans. D

**34. What will be the output of following code :**

#include<stdio.h>

int main(){

while(printf(“%d”, 5) < 4)

printf(“Loop “);

return 0;

}

A. Loop Loop Loop Loop Loop

B. Infinite loop

C. 5Loop 5Loop 5Loop 5Loop 5Loop

D. None of these

Ans. B

**35. What will be the output of following code :**

#include<stdio.h>

#define NULL 0

int main()

{

while (NULL == 0)

{

printf(“Loop”);

break;

}

return 0;

}

A. Loop

B. Null

C. 0

D. Error : Null can not be compared

Ans. A

**36. What will be the output of following code :**

#include<stdio.h>

int main(){

float ft = 7.5;

while(ft)

{

printf(“Loop”);

ft = ft – .5;

if(ft == 5.0f)

break;

}

return 0;

}

A. LoopLoopLoopLoopLoop

B. Loop

C. No output

D. None of these

Ans. A

**37. What will be the output of following code :**

#include<stdio.h>

int main()

{

while(!!7)

printf(“Hai”);

return 0;

}

A. Hai

B. HaiHai

C. Infinite loop

D. None of these

Ans. C

**38. What will be the output of following code :**

#include<stdio.h>

int main(){

while(!printf(“awesome”));

return 0;

}

A. awesome

B. Error

C. Infinite loop

D. None of these

Ans. A

**Set 2. Capgemini Pseudo Code MCQs (previously asked)**

1) What will be the value of s if n=127?

Read n

i=0,s=0

Function Sample(int n)

while(n>0)

r=n%l0

p=8^i

s=s+p\*r

i++

n=n/10

End While

Return s;

End Function

a) 27

b) 187

c) 87

d) 120

**Ans: Option C**

2) 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) 3 1

b) 3 2 1

c) 3

d) Infinite Loop

**Ans: Option D**

3) 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

**Ans: Option C**

4) What will be the value of even\_counter if number = 2630?

Read number

Function divisible(number)

even\_counter = 0, num\_remainder = number;

while (num\_remainder)

digit = num\_remainder % 10;

if digit != 0 AND number % digit == 0

even\_counter= even\_counter+1

End If

num\_remainder= num\_remainder / 10;

End While

return even\_counter;

a) 3

b) 4

c) 2

d) 1

**Answer: Option D**

5) What will be the value of t if a =56 ,b = 876?

Read a,b

Function mul(a, b)

t = 0

while (b != 0)

t = t + a

b=b-1

End While

return t;

End Function

a) 490563

b) 49056

c) 490561

d) None of the mentioned

**Ans: Option B**

6) Code to sort given array in ascending order:

Read size

Read a[1],a[2],a[size]

i=0

**While(i<size)**

j=i+1

**While(j<size)**

**If a[i] < a[j] then**

t= a[i];

a[i] = a[j];

a[j] = t;

End If

j=j+1

End While

i=i+1

End While

i=0

**While (i<size)**

print a[i]

i=i+1

End While

**Find out the wrong statement in the above pseudocode**

a) Line 4

b) Line 6

c) Line 7

d) No Error

**Ans: Option C**

7) What is the time complexity of searching for an element in a circular linked list?

a) O(n)

b) O(nlogn)

c) O(1)

d) None of the mentioned

**Ans: Option A**

8) In the worst case, the number of comparisons needed to search a singly linked list of length n for a given element is

a) log 2 n

b) n?2

c) log 2 n 1

d) n

**Ans: Option D**

9) Which of the following will give the best performance?

a) O(n)

b) O(n!)

c) O(n log n)

d) O(n^C)

**Ans: Option A**

10) How many times the following loop be executed?

{

ch = b;

while(ch >= a && ch <= z)

ch++;

}

a) 0

b) 25

c) 26

d) 1

**Ans: B**

11) Consider the following piece of code.What will be the space required for this code?

int sum(int A[], int n)

{

int sum = 0, i;

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

sum = sum + A[i];

return sum;

}

// sizeof(int) = 2 bytes

a) 2n + 8

b) 2n + 4

c) 2n + 2

d) 2n

**Ans: A**

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

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) 88

c) 72

d) 65

**Ans: C**

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

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

**Ans: D**

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

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) 21

b) 15

c) 9

d) 6

**Ans: A**

15) Consider a hash table with 9 slots. The hash function is h(k) = k mod 9. The collisions are resolved by chaining. The following 9 keys are inserted in the order: 5, 28, 19, 15, 20, 33, 12, 17, 10. The maximum, minimum, and average chain lengths in the hash table, respectively, are

a) 3, 0, and 1

b) 3, 3, and 3

c) 4, 0, and 1

d) 3, 0, and 2

**Ans: A**

16) You have an array of n elements. Suppose you implement a quick sort by always choosing the central element of the array as the pivot. Then the tightest upper bound for the worst case performance is:

a) O(n2)

b) O(nLogn)

c) ?(nLogn)

d) O(n3)

**Ans: A**

17) Let G be a graph with n vertices and m edges. What is the tightest upper bound on the running time on Depth First Search of G? Assume that the graph is represented using adjacency matrix.

a)O(n)

b)O(m+n)

c)O(n2)

d)O(mn)

**Ans: C**

18) Let P be a Quick Sort Program to sort numbers in ascending order using the first element as a pivot. Let t1 and t2 be the number of comparisons made by P for the inputs {1, 2, 3, 4, 5} and {4, 1, 5, 3, 2} respectively. Which one of the following holds?

a)t1 = 5

b)t1 < t2

c)t1 > t2

d)t1 = t2

**Ans: C**

19) What does the following piece of code do?

public void func(Tree root)

{

func(root.left());

func(root.right());

System.out.println(root.data());

}

a)Preorder traversal

b)Inorder traversal

c) Postorder traversal

d)Level order traversal

**Ans: C**

20) How will you find the minimum element in a binary search tree?

a) public void min(Tree root)

{

while(root.left() != null)

{

root = root.left();

}

System.out.println(root.data());

}

b) public void min(Tree root)

{

while(root != null)

{

root = root.left();

}

System.out.println(root.data());

}

c) public void min(Tree root)

{

while(root.right() != null)

{

root = root.right();

}

System.out.println(root.data());

}

d) public void min(Tree root)

{

while(root != null)

{

root = root.right();

}

System.out.println(root.data());

}

**Ans: a**

***What is the output of the code given below?*** Now, let us take up a small test.

|  |  |
| --- | --- |
| 1  2  3  4  5  6  7 | #include <stdio.h>  int main()  {      char ch = 'A';      printf("%d\n", ch);      return 0;  } |

1. A
2. 'A'
3. **65**
4. 97

*Solution*: The output of this code snippet might have been A if the format specifier mentioned in the print statement would be character format specifier - '%c'. But since the format specifier is integer format specifier - '%d', the ASCII code character A which is 65 is retrieved as the output. A

Writing code all starts with knowing the coding constructs. The basic coding constructs of any programming language are data types. You might be tested on knowing more about the data types and the qualifiers not used frequently. You may come across a question of this kind.

***Which of the following is not a valid declaration in C?***

***1.short int x;***

***2.signed short x;***

***3.short x;***

***4.unsigned short x;***

1. 3 and 4
2. 1
3. 2
4. **All are valid**

*Solution*:All are valid. First 3 mean the same thing. 4th means unsigned.

Expression Evaluation is the favorite question to test your knowledge about combinations of different mathematical operators.

***What will be the output of the following code snippet?***

|  |  |
| --- | --- |
| 1  2  3  4  5  6  7  8  9  10  11  12  13  14 | #include <stdio.h>  int foo(int\* a, int\* b)  {      int sum = \*a + \*b;      \*b = \*a;      return \*a = sum - \*b;  }  int main()  {      int i = 0, j = 1, k = 2, l;      l = i++ || foo(&j, &k);      printf("%d %d %d %d", i, j, k, l);      return 0;  } |

1. **1 2 1 1**
2. 1 1 2 1
3. 1 2 2 1
4. 1 2 2 2

***Solution***: The control in the logical OR goes to the second expression only if the first expression results in FALSE. The function foo() is called because **i++** returns 0(post-increment) after incrementing the value of i to 1. The foo() function actually swaps the values of two variables and returns the value of the second parameter. So, values of variables j and k get exchanged and OR expression evaluates to be TRUE.1 2 1 1

Looping constructs and Branching statements of a programming language is an integral part of programming language. You might be asked to retrieve the output of any code snippet using loops like for loop, while loop and do-while loop involving some conditions using branching statements. Let us give a glance over a question of this kind.

***What is correct about the below program?***

|  |  |
| --- | --- |
| 1  2  3  4  5  6  7  8  9 | #include <stdio.h>  int i;  int main()  {      if (i);      else          printf("Ëlse");      return 0;  } |

1. if block is executed.
2. **else block is executed**
3. It is unpredictable as i is not initialized.
4. Error: misplaced else

***Solution***: Since i is defined globally, it is initialized with default value 0. The else block is executed as the expression within if evaluates to FALSE. An empty block is equivalent to a semi-colon(;). So the statements if**(i);**and**if (i) {}** are equivalent.

We can divide a large program into the basic building blocks known as a function. The function contains the set of programming statements enclosed by {}. A function can be called multiple times to provide reusability and modularity to a program. In other words, we can say that the collection of functions creates a program.

You can be given a function and ask you the functionality of the function.

***Consider the following C function***

|  |  |
| --- | --- |
| 1  2  3  4  5  6  7 | void swap ( int x, int y )  {       int tmp;       tmp = x;       x = y;       y = tmp;  } |

***In order to exchange the values of two variables a and b:***

1. Call swap (a, b)
2. Call swap (&a, &b)
3. swap(a, b) cannot be used as it does not return any value
4. **swap(a, b) cannot be used as the parameters passed by value**

*Solution*: The code will not work because the parameters are passed by value. In order to swap the values of x and y the parameters should be passed with reference. The correct code is:

|  |  |
| --- | --- |
| 1  2  3  4  5  6  7 | void swap ( int &x, int &y )  {       int tmp;       tmp = x;       x = y;       y = tmp;  } |

As per the above discussion, you might have got some clarity on the kind of questions that you might come across in this Capgemini Pseudo Code Online test. Having a quick revision on format specifiers, data types, functions, expression statements, conditional statements, looping constructs makes facing this section of the Capgemini recruitment process with great aplomb.

**1) Count the number of co-prime pairs in an array. (**Any two numbers whose GCD is 1 are be called as co-prime)

**Input:**

The first line contains an integer T, total number of elements. Then follow T elements.

**Output:**

Count the number of co-prime pairs in an array.

**Constraints:**

1 ? T ? 25

1 ? elements ? 100

**Sample Input and Output:**

**Input 1:**

3

1 2 3

**Output 1:**

3

Here, Co-prime pairs are (1, 2), (2, 3), (1, 3)

**Input 2:**

4

4 8 3 9

**Output 2:**

4

Here, Co-prime pairs are (4, 3), (8, 3), (4, 9 ), (8, 9 )

#include<stdio.h>

int coprime(int a, int b)

{

int gcd;

while ( a != 0 )

{

gcd = a; a = b%a; b = gcd;

}

if(gcd == 1)

return 1;

else

return 0;

}

int count\_pairs(int arr[], int n)

{

int count = 0;

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

{

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

{

if (coprime(arr[i], arr[j]))

count++;

}

}

return count;

}

int main()

{

int n;

scanf("%d", &n);

int a[25], i;

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

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

printf("%d", count\_pairs(a, n));

return 0;

}

**2) Search for Nth Occurrence**

Given an array, number to search (say e1), and occurrence (say n), print the index of the nth occurrence of e1 in the array. If e1 does not occur n times, then print the index as -1.

**Input and Output:**

Get the size of an array and get elements one by one. Input the number to be searched and occurrence. For example, 7 => Size of an array 1 4 6 7 6 3 6 => array elements 6 => number to be searched 3 => 3rd occurrence of number 6 Output: 6 Explanation: Number 6, 3rd occurrence position is 6

**Sample Input and Output:**

**Input:**

7

1 4 6 7 6 3 6

6

3

**Output:**

6

#include<stdio.h>

int main()

{

int a[100],n,i,e1,size,count=0;

scanf("%d",&size);

for(i=0;i<size;i++)

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

scanf("%d",&e1);

scanf("%d",&n);

for(i=0;i<size;i++)

{

if(e1==a[i])

count++;

//If 'n'th occurrence found then print it's index and exit.

if(count==n)

{

printf("%d",i);

return 0;

}

}

//If 'n' occurrence not found then print '-1'.

printf("%d",-1);

return 0;

}

**3) Search for an element in an array:**

Program to search for an element in the given array.

**Input and Output:**

The input consists of n + 2 lines. The first line consists a single integer n, The next n lines consist of 1 integer element part of the array. The last line consists of an integer to be searched. Output found or missing based on whether the element is present in the array or not. Note: max value of n is 100.

**Sample Input and Output:**

**Input 1:**

**3**

1 2 3

6

**Output 1:**Missing

**Input 2:**

**3**

1 2 3

2

**Output 2:**Found

#include<stdio.h>

#define MAX\_SIZE 20

int main()

{

int n, i, j, min\_index, array[MAX\_SIZE], x;

scanf("%d", &n);

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

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

scanf("%d", &x);

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

{

if(x == array[i])

{

printf("Foundn");

return 0;

}

}

printf("Missingn");

return 0;

}

**4) Second largest number**

**Input:**

The first line contains an integer T, total number of elements. Then follow T integers.

**Output:**

Display the second largest among the given T integers.

**Constraints:**

1 ? T ? 1000

1 ? integers ? 1000000

**Sample Input and Output:**

**Input:**

7

23 45 7 34 25 25 89

**Output:**

45

#include<stdio.h>

int main()

{

int a[50], size, i, j = 0, big, sec\_big;

scanf("%d", &size);

for(i=0; i<size; i++)

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

big=a[0];

for(i=1;i<size;i++)

{

if(big<a[i])

{

big=a[i];

j = i;

}

}

sec\_big =a[size-j-1];

for(i=1;i<size;i++)

{

if(sec\_big <a[i] && j != i)

sec\_big =a[i];

}

printf("%d", sec\_big);

return 0;

}

**5) Search index in a sorted array:**

Program to find the target value in a two-dimensional matrix.

**Input and Output:**

Get a target element and return its coordinates. If the value didn't exist, the program had to return (-1,-1).The first line of input is the sizeof row and column, followed rxc elements. The third line of input is the element to be searched in the rxc matrix.

**Sample Input and Output:**

**Input 1:**

4 2

0 9 8 7 6 5 4 3

3

**Output 1:**

(3, 1)

#include<stdio.h>

int main()

{

int i, j, count = 0;

int arr[10][10], search, r, c;

scanf("%d %d", &r, &c);

for (i = 0; i < r; i++)

{

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

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

}

scanf("%d", &search);

for (i = 0; i < r; i++)

{

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

{

if (arr[i][j] == search)

{

printf("(%d , %d)n", i, j);

count++;

}

}

}

if (count == 0)

printf("(-1,-1)");

return 0;

}

Question: Point out the error in the program?

#include<stdio.h>

 int main()

{

    char ch;

    int i;

    scanf("%c", &i);

    scanf("%d", &ch);

    printf("%c %d", ch, i);

    return 0;

}

 Error: suspicious char to in conversion in scanf()

***Error: we may not get input for second scanf() statement***

 No error

 None of above

Question: Consider the following iterative implementation to find the factorial of a number:

int main()

{

    int n = 6, i;

    int fact = 1;

    for(i=1;i<=n;i++)

      \_\_\_\_\_\_\_\_\_;

    printf("%d",fact);

    return 0;

}

Which of the following lines should be inserted to complete the above code?

fact = fact + i

**fact = fact \* i**

i = i \* fact

 i = i + fact

Question: What is the output of this C code?

#include <stdio.h>

int main()

{

int i=12;

int \*p =&i;

printf(“%d\n”,\*p++);

}

Address of i++

**12**

Garbage value

Address of i

Question: Convert the following  211 decimal number to 8-bit binary?

11011011

11001011

11010011

**11010011**

Question: A NAND gate has:

**LOW inputs and a HIGH output**

LOW inputs and a LOW output

HIGH inputs and a HIGH output

None of these

Question: Comment on the output of this C code?

    #include <stdio.h>

    int main()

    {

        int a = 1;

        switch (a)

        case 1:

            printf("%d", a);

        case 2:

            printf("%d", a);

        case 3:

            printf("%d", a);

        default:

            printf("%d", a);

    }

 No error, output is 1111

 No error, output is 1

 Compile time error, no break statements

***Compile time error, case label outside switch statement***

Question: How will you find the maximum element in a binary search tree?

a)

public void max(Tree root)

{

            while(root.left() != null)

            {

                        root = root.left();

            }

            System.out.println(root.data());

}

b)

public void max(Tree root)

{

            while(root != null)

            {

                        root = root.left();

            }

            System.out.println(root.data());

}

**c)**

**public void max(Tree root)**

**{**

**while(root.right() != null)**

**{**

**root = root.right();**

**}**

**System.out.println(root.data());**

**}**

d)

public void max(Tree root)

{

            while(root != null)

            {

                        root = root.right();

            }

            System.out.println(root.data());

}

Question: What is the output of the following code?

void my\_recursive\_function(int n)

{

    if(n == 0)

    return;

    printf("%d ",n);

    my\_recursive\_function(n-1);

}

int main()

{

    my\_recursive\_function(10);

    return 0;

}

10

1

10 9 8 … 1 0

**10 9 8 … 1**

## **Capgemini Pseudo Code MCQs (previously asked)**

1) What will be the value of s if n=127?

Read n

i=0,s=0

Function Sample(int n)

while(n>0)

r=n%l0

p=8^i

s=s+p\*r

i++

n=n/10

End While

Return s;

End Function

a) 27

b) 187

c) 87

d) 120

**Ans: Option C**

2) 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) 3 1

b) 3 2 1

c) 3

d) Infinite Loop

**Ans: Option D**

3) 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

**Ans: Option C**

4) What will be the value of even\_counter if number = 2630?

Read number

Function divisible(number)

even\_counter = 0, num\_remainder = number;

while (num\_remainder)

digit = num\_remainder % 10;

if digit != 0 AND number % digit == 0

even\_counter= even\_counter+1

End If

num\_remainder= num\_remainder / 10;

End While

return even\_counter;

a) 3

b) 4

c) 2

d) 1

**Answer: Option D**

5) What will be the value of t if a =56 ,b = 876?

Read a,b

Function mul(a, b)

t = 0

while (b != 0)

t = t + a

b=b-1

End While

return t;

End Function

a) 490563

b) 49056

c) 490561

d) None of the mentioned

**Ans: Option B**

6) Code to sort given array in ascending order:

Read size

Read a[1],a[2],a[size]

i=0

**While(i<size)**

j=i+1

**While(j<size)**

**If a[i] < a[j] then**

t= a[i];

a[i] = a[j];

a[j] = t;

End If

j=j+1

End While

i=i+1

End While

i=0

**While (i<size)**

print a[i]

i=i+1

End While

**Find out the wrong statement in the above pseudocode**

a) Line 4

b) Line 6

c) Line 7

d) No Error

**Ans: Option C**

7) What is the time complexity of searching for an element in a circular linked list?

a) O(n)

b) O(nlogn)

c) O(1)

d) None of the mentioned

**Ans: Option A**

8) In the worst case, the number of comparisons needed to search a singly linked list of length n for a given element is

a) log 2 n

b) n?2

c) log 2 n 1

d) n

**Ans: Option D**

9) Which of the following will give the best performance?

a) O(n)

b) O(n!)

c) O(n log n)

d) O(n^C)

**Ans: Option A**

10) How many times the following loop be executed?

{

ch = b;

while(ch >= a && ch <= z)

ch++;

}

a) 0

b) 25

c) 26

d) 1

**Ans: B**

11) Consider the following piece of code.What will be the space required for this code?

int sum(int A[], int n)

{

int sum = 0, i;

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

sum = sum + A[i];

return sum;

}

// sizeof(int) = 2 bytes

a) 2n + 8

b) 2n + 4

c) 2n + 2

d) 2n

**Ans: A**

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

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) 88

c) 72

d) 65

**Ans: C**

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

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

**Ans: D**

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

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) 21

b) 15

c) 9

d) 6

**Ans: A**

15) Consider a hash table with 9 slots. The hash function is h(k) = k mod 9. The collisions are resolved by chaining. The following 9 keys are inserted in the order: 5, 28, 19, 15, 20, 33, 12, 17, 10. The maximum, minimum, and average chain lengths in the hash table, respectively, are

a) 3, 0, and 1

b) 3, 3, and 3

c) 4, 0, and 1

d) 3, 0, and 2

**Ans: A**

16) You have an array of n elements. Suppose you implement a quick sort by always choosing the central element of the array as the pivot. Then the tightest upper bound for the worst case performance is:

a) O(n2)

b) O(nLogn)

c) ?(nLogn)

d) O(n3)

**Ans: A**

17) Let G be a graph with n vertices and m edges. What is the tightest upper bound on the running time on Depth First Search of G? Assume that the graph is represented using adjacency matrix.

a)O(n)

b)O(m+n)

c)O(n2)

d)O(mn)

**Ans: C**

18) Let P be a Quick Sort Program to sort numbers in ascending order using the first element as a pivot. Let t1 and t2 be the number of comparisons made by P for the inputs {1, 2, 3, 4, 5} and {4, 1, 5, 3, 2} respectively. Which one of the following holds?

a)t1 = 5

b)t1 < t2

c)t1 > t2

d)t1 = t2

**Ans: C**

19) What does the following piece of code do?

public void func(Tree root)

{

func(root.left());

func(root.right());

System.out.println(root.data());

}

a)Preorder traversal

b)Inorder traversal

c) Postorder traversal

d)Level order traversal

**Ans: C**

20) How will you find the minimum element in a binary search tree?

a) public void min(Tree root)

{

while(root.left() != null)

{

root = root.left();

}

System.out.println(root.data());

}

b) public void min(Tree root)

{

while(root != null)

{

root = root.left();

}

System.out.println(root.data());

}

c) public void min(Tree root)

{

while(root.right() != null)

{

root = root.right();

}

System.out.println(root.data());

}

d) public void min(Tree root)

{

while(root != null)

{

root = root.right();

}

System.out.println(root.data());

}

**Ans: a**