

# COMPOSED BY (SADIA ALI)

## MIDTERM EXAMINATION

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#### Spring 2009 CS201- Introduction to Programming

**Question No: 1 ( Marks: 1 ) - Please choose one \_\_\_\_\_**

There are mainly----- types of software

- **Two**
- Three
- Four
- Five

**Question No: 2 ( Marks: 1 ) - Please choose one \_\_\_\_\_**

In C/C++ the #include is called,

- Header file
- **Preprocessor Directive**
- Statement
- Function

**Question No: 3 ( Marks: 1 ) - Please choose one \_\_\_\_\_**

&& is----- operator.

- An arithmetic
- **Logical**
- Relational
- Unary

**Question No: 4 ( Marks: 1 ) - Please choose one \_\_\_\_\_**

In flow chart, the symbol used for decision making is,

- Rectangle
- Circle
- Arrow
- **Diamond**

**Question No: 5 ( Marks: 1 ) - Please choose one \_\_\_\_\_**

The correct syntax of do-while loop is,

- (condition ) while; do { statements; };
- { statements; } do-while ();
- while(condition); do { statements; };
- **do { statements; } while (condition);**

**Question No: 6 ( Marks: 1 ) - Please choose one \_\_\_\_\_**

C++ views each file as a sequential stream of\_\_\_\_\_.

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- **Bytes**
- Bits
- 0's or 1's
- Words

**Question No: 7 ( Marks: 1 ) - Please choose one** \_\_\_\_\_

If the elements of an array are already sorted then the useful search algorithm is,

- Linear search
- **Binary search**
- Quick search
- Random search

**Question No: 8 ( Marks: 1 ) - Please choose one** \_\_\_\_\_

The address operator (&) can be used with,

- Statement
- Expression
- **Variable**
- Constant

**Question No: 9 ( Marks: 1 ) - Please choose one** \_\_\_\_\_

When a pointer is incremented, it actually jumps the number of memory addresses

- **According to data type**
- 1 byte exactly
- 1 bit exactly
- A pointer variable can not be incremented

**Question No: 10 ( Marks: 1 ) - Please choose one** \_\_\_\_\_

Each pass through a loop is called a/an

- enumeration
- **iteration**
- culmination
- pass through

**Question No: 11 ( Marks: 1 ) - Please choose one** \_\_\_\_\_

Call by reference mechanism should be used in a program when there is

- large amount of data to be passed
- small amount of data to be passed
- need to change the passed data
- no need to change the passed data

Choose the appropriate option for the above case.

- (i) and (ii) only
- **(i) and (iii) only**
- (ii) and (iii) only

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- (ii) and (iv) only

**Question No: 12 ( Marks: 1 ) - Please choose one**\_\_\_\_\_

Which of the following is the starting index of an array in C++?

- **0**
- 1
- -1
- any number

**Question No: 13 ( Marks: 1 ) - Please choose one**\_\_\_\_\_

The return type of a function that do not return any value must be \_\_\_\_\_

- int
- **void**
- double
- float

**Question No: 14 ( Marks: 1 ) - Please choose one**\_\_\_\_\_

Which of the following is an extension of header file?

- .exe
- .txt
- **.h**
- .c

**Question No: 15 ( Marks: 1 ) - Please choose one**\_\_\_\_\_

We want to access array in random order which approach is better?

- **Pointers**
- Array index
- Both pointers and array index are better
- None of the given options.

**Question No: 16 ( Marks: 1 ) - Please choose one**\_\_\_\_\_

When we declare a multidimensional array the compiler store the elements of multidimensional array in the form of,

- Columns
- Rows
- **Contiguous memory location**
- Matrix

**Question No: 17 ( Marks: 1 )**\_\_\_\_\_

What is the output of the following program?

```
#include iostream.h
main ( ) {
int RollNo;
int rollno;
```

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```
RollNo = 5;  
rollno = 8;  
cout << "Roll No is " << rollno; }
```

## **Solution:**

Program should not compile due to missing `<>` from following statement

```
#include iostream.h
```

if we ignore this then output should be

Roll No is 8

## **Question No: 18 ( Marks: 1 )** \_\_\_\_\_

Why we include **iostream.h** in our programs?

## **Solution:**

Because standard stream handling function are stored in this file. Before using these function in our program it is necessary to tell compiler about the location of these functions.

## **Question No: 19 ( Marks: 2 )**

Find out error in the code given below:

```
if ( num % 2 = 0 )
```

```
cout << "The number is even" << endl;
```

## **Solution:**

if ( num % 2 = 0 ) There should be extra = sign following is right statement

```
if ( num % 2 = =0 )
```

## **Question No: 20 ( Marks: 3 )**

How learning to design programs is like learning to play soccer?

## **Solution:**

“Learning to design programs is like learning to play soccer. A player must learn to trap a ball, to dribble with a ball, to pass, and to shoot a ball. Once the player knows those basic skills, the next goals are to learn to play a position, to play certain strategies, to choose among feasible strategies, and, on occasion, to create variations of a strategy because none fits. “

## **Question No: 21 ( Marks: 5 )**

Write the procedure of data insertion in middle of the files by Merge Method practiced in older systems?

## **Solution:**

- Opened the data file and a new empty file.
- Started reading the data file from beginning of it.
- Kept on copying the read data into the new file until the location we want to insert data into is reached.
- Inserted (appended) new data in the new file.
- Skipped or jumped the data in the data file that is to be overwritten or replaced.
- Copied (appended) the remaining part of the file at the end of the new file

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## Question No: 22 ( Marks: 10 )

Write a recursive function that takes three arguments (an integer array, starting subscript 's' and ending subscript 'e' ).

In first recursive call, the function should display the array from subscript 's' (s = 0) to 'e' (e = size of array). In each successive call, the function should print the array from index s+1 to e. The function should stop processing and return when starting subscript becomes equal to ending subscript.

For example, if user enters values for array 2, 3, 4, 5, 6 then the recursive function must display the following output.

```
2 3 4 5 6
3 4 5 6
4 5 6
5 6
6
```

## Solution:

```
#include <iostream.h>
void PrintArray(int arrayInput[], int &s, int &e);
main ( )
{
int pause;
int TestArray [6] = {1,2,3,4,5,6};
int StartPoint = 0;
int EndPoint = 5;
PrintArray(TestArray , StartPoint, EndPoint);
cout<<"\n";
PrintArray(TestArray , StartPoint, EndPoint);
cin >> pause;
}
void PrintArray(int arrayInput[], int& s, int& e)
{
for (int i = s; i<= e; i++)
{
cout<< arrayInput[i];
}
s=s+1;
}
```

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**Question No: 1 ( Marks: 1 ) - Please choose one**

The function of cin is

- To display message
- **To read data from keyboard**
- To display output on the screen
- To send data to printer

**Question No: 2 ( Marks: 1 ) - Please choose one**

In C/C++ language the header file which is used to perform useful task and manipulation of character data is

- cplext.h
- **ctype.h**
- stdio.h
- delay.h

**Question No: 3 ( Marks: 1 ) - Please choose one**

How many parameter(s) function getline() takes?

- 0
- 1
- 2
- **3**

**Question No: 4 ( Marks: 1 ) - Please choose one**

Word processor is

- Operating system
- **Application software**
- Device driver
- Utility software

**Question No: 5 ( Marks: 1 ) - Please choose one**

**For which values of the integer \_value will the following code becomes an infinite loop?**

```
int number=1;
while (true) {
cout << number;
if (number == 3) break; http://vustudents.ning.com
http://vustudents.ning.com
number += integer_value; }
```

- any number other than 1 or 2
- **only 0**
- only 1
- only 2

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## Question No: 6 ( Marks: 1 ) - Please choose one

Each pass through a loop is called a/an

- enumeration
- **Iteration**
- culmination
- pass through

## Question No: 7 ( Marks: 1 ) - Please choose one

A continue statement causes execution to skip to

- the return 0; statement
- the first statement after the loop
- the statements following the continue statement
- **the next iteration of the loop**

## Question No: 8 ( Marks: 1 ) - Please choose one

What is the correct syntax to declare an array of size 10 of int data type?

- int [10] name ;
- name[10] int ;
- **int name[10] ;**
- int name[] ;

## Question No: 9 ( Marks: 1 ) - Please choose one

Consider the following code segment. What will the following code segment display?

```
int main(){  
int age[10] = {0};  
cout << age ;  
}
```

- Values of all elements of array
- Value of first element of array
- **Starting address of array**
- Address of last array element

## Question No: 10 ( Marks: 1 ) - Please choose one

What will be the correct syntax to initialize all elements of two-dimensional array to value 0?

- int arr[2][3] = {0,0} ;
- **int arr[2][3] = {{0},{0}} ;**
- int arr[2][3] = {0},{0} ; <http://vustudents.ning.com>
- int arr[2][3] = {0} ;

## Question No: 11 ( Marks: 1 ) - Please choose one

How many bytes will the pointer *intPtr* of type **int** move in the following statement?

```
intPtr += 3 ;
```

- 3 bytes
- 6 bytes
- **12 bytes**
- 24 bytes

## Question No: 12 ( Marks: 1 ) - Please choose one

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If there are  $2^{(n+1)}$  elements in an array then what would be the number of iterations required to search a number using binary search algorithm?

- n elements
- (n+1) elements
- $2^{(n+1)}$  elements
- $2^{(n+1)}$  elements

**Question No: 13 ( Marks: 1 ) - Please choose one**

Which of the following operator is used to access the value of variable pointed to by a pointer?

- **\* operator**
- -> operator
- && operator
- & operator

**Question No: 14 ( Marks: 1 ) - Please choose one**

The \_\_\_\_\_ statement interrupts the flow of control.

- switch
- continue
- goto
- **break**

**Question No: 15 ( Marks: 1 ) - Please choose one**

Analysis is the ----- step in designing a program

- Last
- Middle
- Post Design
- **First**

**Question No: 16 ( Marks: 1 ) - Please choose one**

Paying attention to detail in designing a program is \_\_\_\_\_

- Time consuming
- Redundant
- **Necessary**
- Somewhat Good

**Question No: 17 ( Marks: 1 )**

Which programming tool is helpful in tracing the logical errors?

**Solution:**

Debugger is used to debug the program.

**Question No: 18 ( Marks: 1 )**

Give the syntax of opening file 'myFile.txt' with 'app' mode using ofstream variable 'out'.

**Solution:**

```
out.open("myfile.txt" , ios::app);
```

**Question No: 19 ( Marks: 2 )**

What is the difference between **switch** statement and **if** statement.

**Solution:**

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The if statement is used to select among two alternatives. It uses a boolean expression to decide which alternative should be executed. The switch statement is used to select among multiple alternatives. It uses an int expression to determine which alternative should be executed.

**Question No: 20 ( Marks: 3 )**

**Identify the errors in the following code segment and give the reason of errors.**

```
main(){
int x = 10
const int *ptr = &x ;
*ptr = 5 ;
}
```

**Solution:**

**Error:** \*ptr = 5;

**Reason:** declaring a pointer to a constant Integer. You cannot use this pointer to change the value being pointed to:

**Question No: 21 ( Marks: 5 )**

If int array[10]; is an integer array then write the statements which will store values at Fifth and Ninth location of this array,

**Solution:**

```
array[4] = 200;
array[8] = 300;
```

**Question No: 22 ( Marks: 10 )**

Write a function BatsmanAvg which calculate the average of a player (Batsman), Call this function in main program (Function). Take the input of Total Runs made and Total number of matches played from the user in main function

**Solution:**

```
#include <iostream.h> // allows program to output data to the screen
// function main begins program execution
int BatsmanAvg(int TotalRuns, int TotalMatches) ;
main()
{
int stopit;
int TotalRuns, TotalMatchesPlayed =0;
cout << "Please Entere the total Runs made : " ;
cin>> TotalRuns ;
cout << "Please Entere the total match played : " ;
cin>> TotalMatchesPlayed ;
cout << "\n Avg Runs = " << BatsmanAvg(TotalRuns,TotalMatchesPlayed);
cin>> stopit; //pause screen to show output
}
int BatsmanAvg(int TotalRuns, int TotalMatches)
{
return TotalRuns/TotalMatches;
}
```

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Ref No: 440120  
Time: 60 min  
Marks: 38

**Question No: 1 ( Marks: 1 ) - Please choose one**

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- ▶ ctype.h
- ▶ stdio.h
- ▶ delay.h

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How many parameter(s) function getline() takes?

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- ▶ 0
- ▶ 1
- ▶ 2
- ▶ 3

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- ▶ Device driver
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**For which values of the integer `_value` will the following code becomes an infinite loop?**

```
int number=1;
while (true) {
    cout << number;
    if (number == 3) break;
    number += integer_value; }
```

- ▶ any number other than 1 or 2
- ▶ only 0
- ▶ only 1

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- ▶ only 2

## **Question No: 6 ( Marks: 1 ) - Please choose one**

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What is the correct syntax to declare an array of size 10 of int data type?

- ▶ `int [10] name ;`
- ▶ `name[10] int ;`

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- ▶ `int name[10];`
- ▶ `int name[];`

## Question No: 9 ( Marks: 1 ) - Please choose one

Consider the following code segment. What will the following code segment display?

```
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int age[10] = {0};  
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- ▶ Values of all elements of array
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- ▶ `int arr[2][3] = {0,0};`
- ▶ `int arr[2][3] = {{0},{0}};`
- ▶ `int arr[2][3] = {0},{0};`

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▶ `int arr[2][3] = {0} ;`

**Question No: 11 ( Marks: 1 ) - Please choose one**

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How many bytes will the pointer *intPtr* of type `int` move in the following statement?  
`intPtr += 3 ;`

- ▶ 3 bytes
- ▶ 6 bytes
- ▶ 12 bytes
- ▶ 24 bytes

**Question No: 12 ( Marks: 1 ) - Please choose one**

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If there are  $2^{(n+1)}$  elements in an array then what would be the number of iterations required to search a number using binary search algorithm?

- ▶ n elements
- ▶ (n+1) elements
- ▶  $2(n+1)$  elements
- ▶  $2^{(n+1)}$  elements

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- ▶ \* operator
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- ▶ && operator
- ▶ & operator

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The \_\_\_\_\_ statement interrupts the flow of control.

- ▶ switch
- ▶ continue
- ▶ goto
- ▶ break

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Analysis is the ----- step in designing a program

- ▶ Last
- ▶ Middle
- ▶ Post Design
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**Question No: 16 ( Marks: 1 ) - Please choose one**

---

Paying attention to detail in designing a program is \_\_\_\_\_

- ▶ Time consuming
- ▶ Redundant
- ▶ Necessary
- ▶ Somewhat Good

**Question No: 17 ( Marks: 1 )**

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**Question No: 18 ( Marks: 1 )**

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Give the syntax of opening file 'myFile.txt' with 'app' mode using ofstream variable 'out'.

**Question No: 19 ( Marks: 2 )**

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What is the difference between **switch** statement and **if** statement.

**Question No: 20 ( Marks: 3 )**

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**Identify the errors in the following code segment and give the reason of errors.**

```
main(){  
int x = 10
```

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```
const int *ptr = &x ;  
*ptr = 5 ;  
}
```

## **Question No: 21 ( Marks: 5 )**

---

If int array[10]; is an integer array then write the statements which will store values at Fifth and Ninth location of this array,

## **Question No: 22 ( Marks: 10 )**

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Write a function BatsmanAvg which calculate the average of a player (Batsman), Call this function in main program (Function). Take the input of Total Runs made and Total number of matches played from the user in main function

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## **Question No: 1 ( Marks: 1 ) - Please choose one**

---

A precise sequence of steps to solve a problem is called

- ▶ Statement
- ▶ Program
- ▶ Utility
- ▶ Routine

## **Question No: 2 ( Marks: 1 ) - Please choose one**

---

The Compiler of C language is written in

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- ▶ Java Language
- ▶ UNIX
- ▶ FORTRON Language
- ▶ C Language

## Question No: 3 ( Marks: 1 ) - Please choose one

---

Initialization of variable at the time of definition is,

- ▶ Must
- ▶ Necessary
- ▶ Good Programming
- ▶ None of the given options

## Question No: 4 ( Marks: 1 ) - Please choose one

---

In if structure the block of statements is executed only,

- ▶ When the condition is false
- ▶ When it contain arithmetic operators
- ▶ When it contain logical operators
- ▶ When the condition is true

## Question No: 5 ( Marks: 1 ) - Please choose one

---

Which of the following function(s) is/are included in **stdlib.h** header file?

- ▶ double atof(const char \*nptr)

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- ▶ `int atoi(const char *nptr)`
- ▶ `char *strcpy ( char *s1, const char *s2)`
- ▶ 1 and 2 only

## **Question No: 6 ( Marks: 1 ) - Please choose one**

---

Dealing with structures and functions passing by reference is the most economical method

- ▶ True
- ▶ False

## **Question No: 7 ( Marks: 1 ) - Please choose one**

---

Pointer is a variable which store,

- ▶ Data
- ▶ Memory Address
- ▶ Data Type
- ▶ Values

## **Question No: 8 ( Marks: 1 ) - Please choose one**

---

Preprocessor program perform its function before \_\_\_\_\_ phase takes place.

- ▶ Editing
- ▶ Linking
- ▶ Compiling

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▶ Loading

**Question No: 9 ( Marks: 1 ) - Please choose one**

---

Which of the following can not be a variable name?

- ▶ area
- ▶ \_area
- ▶ 10area
- ▶ area2

**Question No: 10 ( Marks: 1 ) - Please choose one**

---

Which looping process is best, when the number of iterations is known?

- ▶ for
- ▶ while
- ▶ do-while
- ▶ all looping processes require that the iterations be known

**Question No: 11 ( Marks: 1 ) - Please choose one**

---

Which character is inserted at the end of string to indicate the end of string?

- ▶ new line
- ▶ tab
- ▶ null

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- ▶ carriage return

**Question No: 12 ( Marks: 1 ) - Please choose one**

---

How many bytes are occupied by declaring following array of characters?

**char str[] = "programming";**

- ▶ 10
- ▶ 11
- ▶ 12
- ▶ 13

**Question No: 13 ( Marks: 1 ) - Please choose one**

---

Which of the following header file defines the **rand()** function?

- ▶ iostream.h
- ▶ conio.h
- ▶ stdlib.h
- ▶ stdio.h

**Question No: 14 ( Marks: 1 ) - Please choose one**

---

Commenting the code \_\_\_\_\_

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- ▶ Makes a program easy to understand for others.
- ▶ Make programs heavy, i.e. more space is needed for executable.
- ▶ Makes it difficult to compile
- ▶ All of the given options.

## **Question No: 15 ( Marks: 1 ) - Please choose one**

---

What's wrong with this for loop?  
for (int k = 2, k <=12, k++)

- ▶ the increment should always be ++k
- ▶ the variable must always be the letter i when using a for loop
- ▶ there should be a semicolon at the end of the statement
- ▶ the commas should be semicolons

## **Question No: 16 ( Marks: 1 ) - Please choose one**

---

For which array, the size of the array should be one more than the number of elements in an array?

- ▶ int
- ▶ double
- ▶ float
- ▶ char

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**Question No: 17 ( Marks: 1 )**

---

To Which category of the software “Compiler and Interpreter” belongs?

**Question No: 18 ( Marks: 1 )**

---

What is the result of the expression  $x = 2 + 3 * 4 - 4 / 2$

**Question No: 19 ( Marks: 2 )**

---

Write a declaration statement for an array of 10 elements of type float. Include an initialization statement of the first four elements to 1.0, 2.0, 3.0 and 4.0.

**Question No: 20 ( Marks: 3 )**

---

Write down the output of the following code?

```
int array[7], sum = 0;
for(int i=0;i<7;i++)
{
    array[i] = i;
    sum+= array[i];
}
cout<< “ Sum = “ <<sum;
```

**What will be the output of the following segment of C++ code?**

```
int A[5] = {1 , 2, 3, 4};
int i;
for (i=0; i<5; i++)
{
    A[i] = 2*A[i];
}
```

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```
cout << A[i] << " ";  
}
```

## Question No: 22 ( Marks: 10 )

---

Write a C++ program that will determine if a departmental store customer has exceeded the credit limit on a charge account.

Program should input the following facts in five variables

1. Account number
2. Balance at the beginning of month (Beginning balance)
3. total of all items charged by customer this month (charges)
4. total of all credits (credits)
5. allowed credit limit

Calculate the new balance

New balance = Beginning balance + charges – credits

Determine if **new balance** exceeds the **allowed credit limit**. For those customers whose credit limit is exceeded. The program should display the message “Credit Limit exceeded.”

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Which of the following function(s) is/are included in **stdlib.h** header file?

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Dealing with structures and functions passing by reference is the most economical method

- **True**
- False

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- 10
- 11
- **12**
- 13

11 plus one for null char (11+1= 12)

**Question No: 13 ( Marks: 1 ) - Please choose one**

Which of the following header file defines the **rand()** function?

- iostream.h
- conio.h
- **stdlib.h**
- stdio.h

**Question No: 14 ( Marks: 1 ) - Please choose one**

Commenting the code \_\_\_\_\_

- **Makes a program easy to understand for others.**
- Make programs heavy, i.e. more space is needed for executable.
- Makes it difficult to compile
- All of the given options.

**Question No: 15 ( Marks: 1 ) - Please choose one**

What's wrong with this for loop?

for (int k = 2, k <=12, k++)

- the increment should always be ++k

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- the variable must always be the letter i when using a for loop
- there should be a semicolon at the end of the statement
- **the commas should be semicolons**

## Question No: 16 ( Marks: 1 ) - Please choose one

For which array, the size of the array should be one more than the number of elements in an array?

- int
- double
- float
- **char**

## Question No: 17 ( Marks: 1 )

To Which category of the software “Compiler and Interpreter” belongs?

### Solution:

They belong to system software.

## Question No: 18 ( Marks: 1 )

What is the result of the expression  $x = 2 + 3 * 4 - 4 / 2$

### Solution:

12

## Question No: 19 ( Marks: 2 )

Write a declaration statement for an array of 10 elements of type float. Include an initialization statement of the first four elements to 1.0, 2.0, 3.0 and 4.0.

### Solution:

```
float tmp [10] = {1.0,2.0,3.0,4.0};
```

## Question No: 20 ( Marks: 3 )

Write down the output of the following code?

```
int array[7], sum = 0;
for(int i=0;i<7;i++)
{
array[i] = i;
sum+= array[i];
}
cout<< “ Sum = “ <<sum;
```

### Solution:

21

Question No: 21 what will be the output of the following segment of C++ code?

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```
int A[5] = {1 , 2, 3, 4};
int i;
for (i=0; i<5; i++)
{
A[i] = 2*A[i];
cout << A[i] << " ";
}
```

## **Solution:**

**2 4 6 8 0**

### **Question No: 22 ( Marks: 10 )**

Write a C++ program that will determine if a departmental store customer has exceeded the credit limit on a charge account.

Program should input the following facts in five variables

1. Account number
2. Balance at the beginning of month (Beginning balance)
3. total of all items charged by customer this month (charges)
4. total of all credits (credits)
5. allowed credit limit

Calculate the new balance

New balance = Beginning balance + charges – credits

Determine if **new balance** exceeds the **allowed credit limit** . For those customers whose credit limit is exceeded. The program should display the message “Credit Limit exceeded.”