CS201P - Introduction to Programming (Practical) (Lab 1 Quiz)

Question # 3 of 5 (Start time: 11:34:58 AM, 24 April 2024)

The coding of a program is translated into machine language by _____.

Select the correct option

○	Linker
○	Debugger
○	Loader
◉	Compiler

CS201P - Introduction to Programming (Practical) (Regular Quiz 2)

Question # 7 of 10 (Start time: 08:23:07 PM, 23 May 2024)

Two arrays are equal if _____.

Select the correct option

- ○ Their values are equal but size is not
- ○ Only their values are equal
- ✓ Both their size and values are equal
- ○ Only their size is equal

CS201P - Introduction to Programming (Practical) (Regular Quiz 2)

Question # 8 of 10 (Start time: 08:23:44 PM, 23 May 2024)

What will be the output of the following code?

```
int main(){
  char str1[] = "Hello ";
  char str2[] = "World!";

  cout << strcat(str1,str2);
}
```

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Page # 194... Must read for concept

Select the correct option

○	Hello World!
○	HelloWorld! ✓
○	Hello
○	World!

CS201P - Introduction to Programming (Practical) (Regular Quiz 2)

Question # 6 of 10 (Start time: 08:22:27 PM, 23 May 2024)

Which of the following is not a file opening mode?

Page # 203

Select the correct option

○	ios::in
○	ios::ate
○	ios::nocreate ✓
○	ios::trunc

CS201P - Introduction to Programming (Practical) (Regular Quiz 2)

Question # 5 of 10 (Start time: 08:21:55 PM, 23 May 2024)

____ character is used to terminate a string.

Page # 436

Select the correct option

○	*Stop*
○	*End*
○	*Null* ✓
○	*Full*

CS201P - Introduction to Programming (Practical) (Regular Quiz 2)

Question # 4 of 10 (Start time: 08:21:16 PM, 23 May 2024)

Which of the following is the correct way to initialize all the elements of array with 0?

Page # 103

Select the correct option

○	int arr[5]={0};
○	int arr[5]=All_Zero;
○	int arr[5]={5(0)};
○	int arr[5]={5&0}

CS201P - Introduction to Programming (Practical) (Regular Quiz 2)

Question # 3 of 10 (Start time: 08:20:43 PM, 23 May 2024)

Which type of arrays are used while dealing with sentences?

Page # 113

Select the correct option

○	Character arrays
○	Word arrays
○	Integer arrays
○	Floating-point arrays

CS201P - Introduction to Programming (Practical) (Regular Quiz 2)

Question # 2 of 10 (Start time: 08:20:10 PM, 23 May 2024)

Which of the following option gives the [value] stored at the address pointed to by the pointer "ptr"?

Page # 147

Select the correct option

- ○ &ptr
- ○ *ptr ✓
- ○ Value(ptr)
- ○ ptr

CS201P - Introduction to Programming (Practical) (Regular Quiz 2)

Question # 1 of 10 (Start time: 08:19:40 PM, 23 May 2024)

In C++, pointer can be initialized with

Page # 148

Select the correct option

○	Hash(#)
○	Dot(.)
○	Null
○	Semicolon(;)

CS201P - Introduction to Programming (Practical) (Lab 1 Quiz)

Question # 1 of 5 (Start time: 11:33:26 AM, 24 April 2024)

Short data type store _____ bytes of memory.

Select the correct option

○	1
○	3
○	2
○	4

CS201P - Introduction to Programming (Practical) (Lab 2 Quiz)

Question # 1 of 5 (Start time: 08:08:33 PM, 26 April 2024)

Which of the following C++ statements is used to show output on the screen?

Select the correct option

- cout
- cin
- cget
- cerr

CS201P - Introduction to Programming (Practical) (Lab 2 Quiz)

Question # 2 of 5 (Start time: 08:08:42 PM, 26 April 2024)

Which of the following is an example of repetition structure?

Select the correct option

○	cond
○	if
○	while
○	if-else

CS201P - Introduction to Programming (Practical) (Lab 2 Quiz)

Question # 3 of 5 (Start time: 08:08:48 PM, 26 April 2024)

While programming in C++, the statement *if* (x = 3), will result into a _____.

Pg #35

Select the correct option

- ○ Logical Error
- ○ Linker Error
- ○ Syntax Error
- ○ Runtime Error

CS201P - Introduction to Programming (Practical) (Lab 2 Quiz)

Question # 5 of 5 (Start time: 08:11:33 PM, 26 April 2024)

What will be the output of the following code?

```
int i = 0;
while(i!=15){
  cout << i << " ";
  i = i + 5;
}
```

Select the correct option

- ○ 1 5 10
- ○ 5 10
- ○ 0 5
- ○ 0 5 10

CS201P - Introduction to Programming (Practical) (Lab 1 Quiz)

Question # 2 of 5 (Start time: 11:34:09 AM, 24 April 2024)

Suppose we have an integer variable named "num" with 4567 as its value, then what will be the resulting value for the expression "num/100"?

Select the correct option

○	4
○	456
○	45
○	456.7

CS201P - Introduction to Programming (Practical) (Lab 1 Quiz)

Question # 4 of 5 (Start time: 11:35:36 AM, 24 April 2024)

C/C++ has many libraries which contain variables and function names normally starting with ____.

Pg no: 17

Select the correct option

○	Semi-Colon
○	Hyphen
○	Underscore
○	Hash

CS201P - Introduction to Programming (Practical) (Lab 1 Quiz)

Question # 5 of 5 (Start time: 11:35:58 AM, 24 April 2024)

In C++, cout is known as _____.

Select the correct option

- ○ output stream
- ○ error stream
- ○ file stream
- ○ input stream

Question # 2 of 5 (Start time: 11:40:45 AM, 30 April 2024)

If a function does not return anything, its return type will be _____.

Select the correct option

○	Zero
◉	Void
○	Return 0
○	Null

CS201P - Introduction to Programming (Practical) (Lab 3 Quiz)

Question # 3 of 5 (Start time: 11:42:00 AM, 30 April 2024)

If the condition is not made false in *while* loop, what will happen?

Select the correct option

- ○ Program will not run at all.
- ○ Program will terminate early.
- ● Loop will become infinite.
- ○ Syntax errors occur.

CS201P - Introduction to Programming (Practical) (Lab 3 Quiz)

Question # 4 of 5 (Start time: 11:42:48 AM, 30 April 2024)

Which of the following is true about the *switch* statement?

Select the correct option

- (●) It cannot handle the compound conditions which use logical operators.
- ( ) It works efficiently on compound conditions which use logical operators.
- ( ) It is valid for the large programs only.
- ( ) It is valid for the small programs only.

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CS201P - Introduction to Programming (Practical) (Lab 3 Quiz)

Question # 5 of 5 (Start time: 11:43:28 AM, 30 April 2024)

The loop, given below, will iterate_____ times.

For (int counter = 1; counter < 10; counter = counter +1)

Select the correct option

○	10
○	0
◉	9
○	110

CS201P - Introduction to Programming (Practical) (Regular Quiz 1)

Question # 4 of 10 (Start time: 03:42:01 PM, 03 May 2024)

In C/C++, the algebraic expression $(b^2-4ac) / 2a$ can be written as:

Select the correct option

- (●) (b*b – 4*a*c) / (2*a)
- ( ) b*b – (4*a*c) / 2*a
- ( ) b*b – 4*a* c/ 2*a
- ( ) b*b – 4* a*c / (2*a)

CS201P - Introduction to Programming (Practical) (Regular Quiz 1)

Question # 5 of 10 (Start time: 03:42:40 PM, 03 May 2024)

Which of the following option is used when working with complicated expressions in C++ ?

Select the correct option

- []
- /
- 0
- {}

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CS201P - Introduction to Programming (Practical) (Regular Quiz 1)

Question # 6 of 10 (Start time: 03:43:55 PM, 03 May 2024)

Which of the following C++ statements is used take input from the user?

Select the correct option

- ○ cout
- ○ cerr
- ◉ cin
- ○ cget

CS201P - Introduction to Programming (Practical) (Regular Quiz 1)

Question # 7 of 10 (Start time: 03:44:23 PM, 03 May 2024)

In C++, which of the following option has the correct meaning of the expression "a <= b" ?

Select the correct option

- a is greater than b
- a is less than or equal to b
- a is less than b
- a is greater than or equal to b

CS201P - Introduction to Programming (Practical) (Regular Quiz 1)

Question # 8 of 10 (Start time: 03:45:16 PM, 03 May 2024)

Normally, the float data type is half of the size of _____.

Select the correct option

- (●) double
- ( ) char
- ( ) short
- ( ) int

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Question # 10 of 10 (Start time: 03:46:51 PM, 03 May 2024)

What will be the output of the following piece of code?

```
int square(int number)
{
int result = 0;
result = number * number;
return result;
}
int main()
{
cout<<square(9);
}
```

Select the correct option

- 99
- 49
- 81

CS201P - Introduction to Programming (Practical) (Lab 4 Quiz)

Question # 1 of 5 (Start time: 10:27:56 AM, 06 May 2024)

Which of the following is the correct method to declare an array?

Select the correct option

- [ ] [size] array_name data_type;
- [x] data_type array_name [size];
- [ ] array_name data_type [size];
- [ ] array_name [size] data_type;

CS201P - Introduction to Programming (Practical) (Lab 4 Quiz)

Question # 2 of 5 (Start time: 10:28:52 AM, 06 May 2024)

A variable declared inside a code block becomes the _____variable for that block.

Select the correct option

○	Constant
◉	Local
○	Static
○	Global

CS201P - Introduction to Programming (Practical) (Lab 4 Quiz)

Question # 3 of 5 (Start time: 10:29:30 AM, 06 May 2024)

char name [] = "Hello World";

In the above statement, a memory of ____ characters will be allocated to the array *name*.

Select the correct option

- ○ 13
- ◉ 12
- ○ 10
- ○ 11

CS201P - Introduction to Programming (Practical) (Lab 4 Quiz)

Question # 4 of 5 (Start time: 10:30:36 AM, 06 May 2024)

Which type of arrays are used while dealing with sentences?

Select the correct option

○	Floating-point arrays
○	Word arrays
○	Integer arrays
◉	Character arrays

CS201P - Introduction to Programming (Practical) (Lab 4 Quiz)

Question # 5 of 5 (Start time: 10:31:01 AM, 06 May 2024)

Which of the following is the correct way to initialize all the elements of array with 0?

Select the correct option

○	int arr[5]={5&0}
○	int arr[5]={5(0)};
◉	int arr[5]={0};
○	int arr[5]=All_Zero;

CS201P - Introduction to Programming (Practical) (Lab 5 Quiz)

Question # 1 of 5 (Start time: 05:55:32 AM, 10 May 2024)

Which of the following shows the memory address of the first element in an array?

Select the correct option

- ○ array
- ○ array{0}
- ○ array(0)
- ◉ array[0]

CS201P - Introduction to Programming (Practical) (Lab 5 Quiz)

Question # 2 of 5 (Start time: 05:56:20 AM, 10 May 2024)

In C++, a one-dimensional array inside a one-dimensional array is called _____.

Select the correct option

- ○ Three-dimensional array
- ○ One-dimensional array
- ○ Multi-casting array
- ◉ Two-dimensional array

CS201P - Introduction to Programming (Practical) (Lab 5 Quiz)

Question # 4 of 5 (Start time: 05:58:17 AM, 10 May 2024)

In C++, to get the value stored at a memory address, we use the _____ operator.

Select the correct option

- dereferencing
- bitwise
- arithmetic
- logical

CS201P - Introduction to Programming (Practical) (Lab 5 Quiz)

Question # 5 of 5 (Start time: 05:59:12 AM, 10 May 2024)

In C++, a sequence of objects having the same type, is called _____.

Select the correct option

○	Stack
○	Function
○	Operator
◉	Array

CS201P - Introduction to Programming (Practical) (Lab 6 Quiz)

Question # 3 of 5 (Start time: 10:24:29 AM, 13 May 2024)

From the following code, what will be the size of the array "name"?

char name [] = "My full name";

Select the correct option

◉	13
○	12
○	14
○	15

CS201P - Introduction to Programming (Practical) (Lab 6 Quiz)

Question # 4 of 5 (Start time: 10:25:04 AM, 13 May 2024)

In C++, **atoi ()** function is used to convert _____.

Select the correct option

- (●) Character string to integer
- ( ) Character string to float
- ( ) Character string to double
- ( ) Character string to long integer

CS201P - Introduction to Programming (Practical) (Lab 6 Quiz)

Question # 5 of 5 (Start time: 10:25:38 AM, 13 May 2024)

Suppose we have declared a two-dimensional array "multi". To access its elements using pointer, we should use referencing like _____.

Select the correct option

○	multi
○	*multi
○	*multi + 1
◉	**multi

CS201P - Introduction to Programming (Practical) (Lab 7 Quiz)

Question # 1 of 5 (Start time: 08:06:30 AM, 20 May 2024)

In bit manipulation of binary systems, if we shift a bit towards right then it means we are _____ that binary value with '2'

Select the correct option

- ○ Adding
- ○ Multiplying
- ◉ Dividing
- ○ Subtracting

Left <<

Right >>

CS201P - Introduction to Programming (Practical) (Lab 7 Quiz)

Question # 2 of 5 (Start time: 08:07:48 AM, 20 May 2024)

In C++, which operator is used while accessing through the pointer to structure?

Select the correct option

○	-
○	=
○	&
◉	->

CS201P - Introduction to Programming (Practical) (Lab 7 Quiz)

Question # 3 of 5 (Start time: 08:09:02 AM, 20 May 2024)

What will be the output of the following code?

```
int num = 2;
int count=0;
while(num!= 0)
{
if ( num & 01)
count ++;
num >>=1;
}

cout<< count;
return 0;
```

Select the correct option

- (●) 1
- ( ) 3

CS201P - Introduction to Programming (Practical) (Lab 7 Quiz)

Question # 4 of 5 (Start time: 08:10:27 AM, 20 May 2024)

In C++, default visibility of structure is _____.

489 , 307 Must read

Select the correct option

- ○ Protected
- ○ Pass
- ◉ Public
- ○ Private

CS201P - Introduction to Programming (Practical) (Lab 7 Quiz)

Question # 5 of 5 (Start time: 08:11:52 AM, 20 May 2024)

The bit manipulation operator _____ is used to set a specific bit.

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Select the correct option

- ○ *
- ○ &
- ◉ |
- ○ ^

CS201P - Introduction to Programming (Practical) (Regular Quiz 2)

Question # 3 of 10 (Start time: 09:22:50 AM, 24 May 2024)

In C/C++ language, the subscript of array starts from _____.

Select the correct option

- ○ 2
- ○ 1
- ○ 3
- ◉ 0

CS201P - Introduction to Programming (Practical) (Regular Quiz 2)

Question # 4 of 10 (Start time: 09:23:25 AM, 24 May 2024)

What will be the output of the following code?

```
int main (int argc, char **argv) {

cout<<argc;

}
```

Select the correct option

○	Null
○	0
○	2
◉	1

CS201P - Introduction to Programming (Practical) (Regular Quiz 2)

Question # 5 of 10 (Start time: 09:24:25 AM, 24 May 2024)

To create an output file stream, we must declare the stream to be of class.

Select the correct option

- (●) ofstream
- ( ) ifstream
- ( ) cstream
- ( ) iostream

CS201P - Introduction to Programming (Practical) (Regular Quiz 2)

Question # 6 of 10 (Start time: 09:25:05 AM, 24 May 2024)

Which of the following is the default function calling mechanism of C/C++?

Select the correct option

- ○ Call by Variable Address
- ◉ Call by Value
- ○ Call by Reference
- ○ Call by Function Memory

CS201P - Introduction to Programming (Practical) (Regular Quiz 2)

Question # 7 of 10 (Start time: 09:25:55 AM, 24 May 2024)

Which of the following option gives the [value] stored at the address pointed to by the pointer "ptr"?

Select the correct option

- (●) *ptr
- ( ) ptr
- ( ) &ptr
- ( ) Value(ptr)

CS201P - Introduction to Programming (Practical) (Regular Quiz 2)

Question # 8 of 10 (Start time: 09:26:27 AM, 24 May 2024)

In C++, what is the correct syntax for accessing the fifth element of an array?

Select the correct option

○	a(4)
○	a[5]
○	a(5)
◉	a[4]

CS201P - Introduction to Programming (Practical) (Regular Quiz 2)

Question # 9 of 10 (Start time: 09:26:58 AM, 24 May 2024)

What will be the output of the following code?

```
int main() {
int a[4]={1,2,3,4};
cout<< a[2];
}
```

Select the correct option

○	4
○	1
○	2
○	3

CS201P - Introduction to Programming (Practical) (Regular Quiz 2)

Quiz Start Time: 11:10 AM, 23

Question # 1 of 10 (Start time: 11:10:40 AM, 23 May 2024)

Tot

In C++, a file can be opened for reading by using the ____ function.

Page no 212

Select the correct option

Reload Math E

- read()
- write()
- open()
- open_file()

Click to Save Answer & Move to Next Q

Time Left sec(s)

CS201P - Introduction to Programming (Practical) (Lab 5 Quiz) Quiz Start Time: 11:48 AM, 10 May 2024

Question # 3 of 5 (Start time: 11:50:37 AM, 10 May 2024) Total Marks: 1

What will be the output of the following code?

```
int main() {
int x = 5;
int * ptr = &x;
*ptr + 1;
cout << (*ptr)++;
}
```

Select the correct option

Reload Math Equations

- 7
- 5
- 8
- 6

Click to Save Answer & Move to Next Question

Question # 3 of 5 (Start time: 10:15:26 AM, 13 November 2023) **Total Marks**

In C++, using if statement, if we want to execute more than one statement, then we have to enclose all statements in _____.

Select the correct option

Reload Math Equations

- {}
- <>
- []
- ()

Question # 8 of 10 (Start time: 05:04:37 PM, 03 May 2024) **Total**

In C++, if we want to execute more than one statement within an 'if statement', then we have to enclose all statements in _____.

Select the correct option

Reload Math Equ

○	()
○	[]
◉	{}
○	<>

Click to Save Answer & Move to Next Qu

CS201P - Introduction to Programming (Practical) (Lab 3 Quiz)

Quiz Start Time: 10:17 AM, 30 A

Question # 3 of 5 (Start time: 10:19:50 AM, 30 April 2024)

Toto

Which of the following structure is correct for WHILE loop?

Select the correct option

Reload Math Eq

- While (condition)
- While (start; condition; end)
- While (condition; end)
- While (start; condition)

Click to Save Answer & Move to Next Que

CS201P - Introduction to Programming (Practical) (Lab 3 Quiz) Quiz Start Time: 10:17 AM, 30 Apr

Question # 1 of 5 (Start time: 10:17:09 AM, 30 April 2024) Total M

Which of the following is the first step in FOR loop?

Select the correct option

Reload Math Equa

- Continuation condition
- Initialization condition
- Incrementing condition
- Termination condition

Click to Save Answer & Move to Next Quest

CS201P - Introduction to Programming (Practical) (Lab 6 Quiz)

Question # 5 of 5 (Start time: 09:48:00 PM, 14 May 2024)

What will be the output of the following code?

```
int main(){
    int number[5] = {10,20,30,40,50};
    cout << *(number+3);
}
```

Select the correct option

○	40
○	30
○	50
○	10

CS201P - Introduction to Programming (Practical) (Lab 1 Quiz)

Question # 4 of 5 (Start time: 09:51:16 PM, 14 May 2024)

Which data type from the following will take lesser space in memory?

Select the correct option

○	int
○	short
○	float
○	char

CS201P - Introduction to Programming (Practical) (Lab 1 Quiz)

Question # 2 of 5 (Start time: 09:53:24 PM, 24 April 2024)

In C/C++, which of the following data type is used to store real numbers?

Select the correct option

○	char
○	int
○	boolean
●	float

CS201P - Introduction to Programming (Practical) (Lab 8 Quiz) **Quiz Start Time: 04**

Question # 1 of 5 (Start time: 04:36:34 AM, 29 May 2024)

_____ is a useful statement when at a certain stage you do not want to execute the remaining statements inside the loop and want to go to the first statement of loop.

Select the correct option

Relo

- Default
- Goto
- Continue
- Break

CS201P - Introduction to Programming (Practical) (Lab 8 Quiz)

Question # 2 of 5 (Start time: 05:01:36 AM, 29 May 2024)

Dynamic memory allocation uses memory from the _____.

Select the correct option

- ○ Array
- ○ Mulit-dimensional Array
- ○ Stack
- ● Heap

CS201P - Introduction to Programming (Practical) (Lab 8 Quiz)

Question # 3 of 5 (Start time: 05:02:21 AM, 29 May 2024)

Macro is defined by _____ preprocessor directive.

Select the correct option

- ○ #else
- ○ #if
- ○ #endif
- ● #define

CS201P - Introduction to Programming (Practical) (Lab 8 Quiz)

Question # 4 of 5 (Start time: 05:02:51 AM, 29 May 2024)

What would be the output of the following statement?
c = 13 % 2;

Select the correct option

- (●) 1
- ( ) 0
- ( ) 3
- ( ) 2

CS201P - Introduction to Programming (Practical) (Lab 8 Quiz)

Question # 5 of 5 (Start time: 05:03:20 AM, 29 May 2024)

Representing logical depiction of the solution to the problem is known as a _____.

Select the correct option

- ○ Sequence
- ◉ Flowchart
- ○ Loop
- ○ Structure

CS201P - Introduction to Programming (Practical) (Regular Quiz 4)

Question # 6 of 10 (Start time: 08:00:59 AM, 02 July 2024)

Data encapsulation can be achieved through _____.

Select the correct option

- ◉ Classes
- ○ Structures
- ○ Pointers
- ○ Arrays

3. A one-dimensional array contains one-dimensional arrays is called

A. Two-dimensional array
B. Multi-casting array
C. Multi-dimensional array
D. Three-dimensional array

Answer - Click Here:

A

2. Which of the following gives the [value] stored at the address pointed to by the pointer : ptr?

A. Value(ptr)
B. ptr
C. &ptr
D. *ptr

View Answer

Ans : D
Explanation: *ptr gives the [value] stored at the address pointed to by the pointer : ptr.

CS201P - Introduction to Programming (Practical) (Regular Quiz 2) Quiz Start Time:

Question # 8 of 10 (Start time: 03:30:35 PM, 28 December 2022)

Which type of arrays are used while dealing with sentences?

Select the correct option

- Character arrays
- Integer arrays
- Floating-point arrays
- Word arrays

CS201P - Introduction to Programming (Practical) (Lab 2 Quiz)

Question # 4 of 5 (Start time: 08:10:20 PM, 26 April 2024)

What will be the output of the following code?

```
int i = 1;
while(i<10){
  if (i / 2 == 2)
     cout << i << " ";
i++;
}
```

Select the correct option

- 2 3
- 4 5 ✓

CS201P - Introduction to Programming (Practical) (Lab 5 Quiz)

Question # 3 of 5 (Start time: 05:57:15 AM, 10 May 2024)

What will be the output of the following code?

```
int main(){
  char str[] = "Hello World";

        cout<<str[4];
        return 0;
}
```

Select the correct option

- O
- W
- L
- H

CS201P - Introduction to Programming (Practical) (Lab 9 Quiz)

Question # 1 of 5 (Start time: 08:40:03 AM, 24 June 2024)

Which function is automatically called when an object of a class is initiated?

Select the correct option

○	Destructor
○	Friend function
○	Utility function
◉	Constructor

CS201P - Introduction to Programming (Practical) (Lab 9 Quiz)

Question # 2 of 5 (Start time: 08:40:33 AM, 24 June 2024)

In C++, the name of the _____ is the same as that of a class with a preceding tilde (~) sign.

Select the correct option

- ○ Constructor
- ○ Friend function
- ◉ Destructor
- ○ Utility function

CS201P - Introduction to Programming (Practical) (Lab 6 Quiz)

Question # 2 of 5 (Start time: 10:21:38 AM, 13 May 2024)

In C++, all the string manipulation function are defined inside _____ header file.

Select the correct option

- ○ iostream
- ◉ string.h
- ○ stdio.h
- ○ conio.h

CS201P - Introduction to Programming (Practical) (Lab 9 Quiz)

Question # 3 of 5 (Start time: 08:41:02 AM, 24 June 2024)

In C++, which of the following option is used to declare a class?

Select the correct option

- ○ cLAss
- ◉ class
- ○ CLASS
- ○ Class

CS201P - Introduction to Programming (Practical) (Lab 9 Quiz)

Question # 4 of 5 (Start time: 08:41:44 AM, 24 June 2024)

A constructor with arguments is known as.

Select the correct option

- ○ Destructor
- ◉ Paramterized Constructor
- ○ Default Constructor
- ○ Virtual Constructor

CS201P - Introduction to Programming (Practical) (Lab 9 Quiz)

Question # 5 of 5 (Start time: 08:42:14 AM, 24 June 2024)

What will be the output of the following code?

```
void sampleFunction(int = 5,float = 4.1, char = 'A');
int main(){

  sampleFunction(50,3.2);

}

void sampleFunction(int one,float two ,char three) {
      cout << one << ", " << two << ", " << three;
}
```

Select the correct option

- ○ 5, 4.1, A
- ○ 5, 3.2, A
- ○ 50, 4.1, A
- ◉ 50, 3.2, A

CS201P - Introduction to Programming (Practical) (Lab 10 Quiz)

Question # 1 of 5 (Start time: 11:53:27 AM, 04 July 2024)

If the memory in the free store is not sufficient enough to fulfill the request, malloc () function returns _____.

Select the correct option

- ○ 0
- ○ 1
- ◉ NULL
- ○ -1

CS201P - Introduction to Programming (Practical) (Lab 10 Quiz)

Question # 3 of 5 (Start time: 11:54:24 AM, 04 July 2024)

calloc() functions allocates multiple blocks of memory and each block have _____?

Select the correct option

- (●) Same size
- ( ) Same length
- ( ) Different size
- ( ) Different length

CS201P - Introduction to Programming (Practical) (Lab 10 Quiz)

Question # 4 of 5 (Start time: 11:54:50 AM, 04 July 2024)

Which one is correct syntax for declaration of a function which can return a reference?

Select the correct option

- (●) datatype& function_name (parameter list)
- ( ) datatype (parameter list) &function_name
- ( ) &function_name datatype (parameter list)
- ( ) &datatype function_name (parameter list)

CS201P - Introduction to Programming (Practical) (Lab 10 Quiz)

Question # 2 of 5 (Start time: 11:53:52 AM, 04 July 2024)

Which one is the correct syntax to declare the *friend* function?

Select the correct option

- (●) friend return_type friend_function_name(int, char);
- ( ) FRIEND return_type friend_function_name(int, char);
- ( ) Friend return_type (int, char);
- ( ) FRIEND friend_function_name(int, char);

Question # 5 of 5 (Start time: 11:55:21 AM, 04 July 2024)

In the following code, what will be the output of i?

```
#include<iostream>
using namespace std;
main()
{
int i;
int &j = i;
i = 123;
cout<< "\n The value of i =" << i;
}
```

Select the correct option

- (●) 123
- ( ) 321
- ( ) 012345x

CS201P - Introduction to Programming (Practical) (Regular Quiz 3)

Question # 5 of 10 (Start time: 10:35:15 AM, 27 June 2024)

What will be the output of the following code?

```
int num = 2;
int count=0;
while(num!= 0)
{
if ( num & 01)
count ++;
num >>=1;
}

cout<< count;
return 0;
```

Select the correct option

- ○ 3
- ○ 4
- ○ 1
- ○ 2

CS201P - Introduction to Programming (Practical) (Regular Quiz 3)

Question # 1 of 10 (Start time: 10:31:48 AM, 27 June 2024)

In C++, default visibility of structure is _____.

Select the correct option

- ○ Public
- ○ Private
- ○ Pass
- ○ Protected

CS201P - Introduction to Programming (Practical) (Regular Quiz 2)

Question # 1 of 10 (Start time: 09:20:21 AM, 24 May 2024)

What will be the output of the following code?

```
int main(){
  char str[] = "Hello World";

        cout<<str[4];
        return 0;
}
```

Select the correct option

- H
- L ✗
- W
- O ✓

CS201P - Introduction to Programming (Practical) (Regular Quiz 2)

Question # 2 of 10 (Start time: 09:21:17 AM, 24 May 2024)

The *size* variable in the following program is a _____ variable.

```
#include<iostream>
_
int size;
_
int main ()
{
        _
}
```

Select the correct option

- ○ Constant
- ◉ Global
- ○ Static

CS201P - Introduction to Programming (Practical) (Regular Quiz 3)

Question # 2 of 10 (Start time: 10:33:03 AM, 27 June 2024)

Macro is defined by _____ preprocessor directive.

Select the correct option

- (●) #define
- ( ) #endif
- ( ) #if
- ( ) #else

CS201P - Introduction to Programming (Practical) (Regular Quiz 3)

Question # 3 of 10 (Start time: 10:33:43 AM, 27 June 2024)

_____ is a user-defined data type.

Select the correct option

- ○ Function
- ◉ Class
- ○ Pointer
- ○ Constructor

CS201P - Introduction to Programming (Practical) (Regular Quiz 3)

Question # 4 of 10 (Start time: 10:34:28 AM, 27 June 2024)

_____ is a useful statement when at a certain stage you do not want to execute the remaining statements inside the loop and want to go to the first statement of loop.

Select the correct option

- ○ Default
- ○ Goto
- ◉ Continue
- ○ Break

CS201P - Introduction to Programming (Practical) (Regular Quiz 3)

Question # 6 of 10 (Start time: 10:36:35 AM, 27 June 2024)

To understand programming concepts, _____ programming language is being used as a vehicle in CS201- "Introduction to Programming" course.

Select the correct option

○	C#
○	Java
○	B
◉	C/C++

CS201P - Introduction to Programming (Practical) (Regular Quiz 3)

Question # 10 of 10 (Start time: 10:38:30 AM, 27 June 2024)

In C++, the default constructor takes _____.

Select the correct option

- ○ Only one argument
- ○ Only two arguments
- ◉ No arguments
- ○ More than two arguments

CS201P - Introduction to Programming (Practical) (Regular Quiz 3)

Question # 9 of 10 (Start time: 10:37:57 AM, 27 June 2024)

Representing logical depiction of the solution to the problem is known as a _____.

Select the correct option

- (●) Flowchart
- ( ) Sequence
- ( ) Loop
- ( ) Structure

CS201P - Introduction to Programming (Practical) (Regular Quiz 3)

Question # 8 of 10 (Start time: 10:37:31 AM, 27 June 2024)

In C++, the name of the _____ is the same as that of a class with a preceding tilde (~) sign.

Select the correct option

- (●) Destructor
- ( ) Constructor
- ( ) Friend function
- ( ) Utility function

CS201P - Introduction to Programming (Practical) (Regular Quiz 4)

Question # 8 of 10 (Start time: 08:02:24 AM, 02 July 2024)

Which one is not the member function of input stream?

Select the correct option

- get();
- cin.get();
- cin.getline();
- cin.read();

CS201P - Introduction to Programming (Practical) (Regular Quiz 4)

Question # 9 of 10 (Start time: 08:03:07 AM, 02 July 2024)

What is the correct prototype of overloading of delete operator?

Select the correct option

- ○ new operator delete (void * ptr);
- ○ void * operator delete (size_t size) ;
- ○ void * operator delete (size_t, size) ;
- ● void operator delete (void * ptr) ;

CS201P - Introduction to Programming (Practical) (Regular Quiz 4)

Question # 5 of 10 (Start time: 07:59:38 AM, 02 July 2024)

What is the output of this program?

```
#include < iostream >

using namespace std;

main ()

{

int num;

cout << "Please enter an integer value: ";

cin >> num + 4;

}
```

Select the correct option

- Error
- Add number+4

CS201P - Introduction to Programming (Practical) (Regular Quiz 4)

Question # 10 of 10 (Start time: 08:03:50 AM, 02 July 2024)

In C++, ***sizeof*** operator is used to determine _____.

Select the correct option

- (●) Size of data type
- ( ) Length of string
- ( ) Length of words
- ( ) Number of words

CS201P - Introduction to Programming (Practical) (Regular Quiz 4)

Question # 6 of 10 (Start time: 08:00:59 AM, 02 July 2024)

Data encapsulation can be achieved through _____.

Select the correct option

- (●) Classes
- ( ) Structures
- ( ) Pointers
- ( ) Arrays

CS201P - Introduction to Programming (Practical) (Regular Quiz 4)

Question # 7 of 10 (Start time: 08:01:28 AM, 02 July 2024)

Correct syntax of the prototype of the overloaded operator function is _____.

Select the correct option

- ○ return type operator (operator-symbol)
- ○ return type operator-symbol operator (parameter);
- ◉ return-type operator operator-symbol (parameter-list);
- ○ operator operator-symbol return type (no parameter);

CS201P - Introduction to Programming (Practical) (Regular Quiz 4)

Question # 4 of 10 (Start time: 07:59:07 AM, 02 July 2024)

In the syntax of the overloaded operator function given below:

Complex operator + (Complex &);

What is 'operator'?

Select the correct option

- (●) Keyword
- ( ) Class
- ( ) Operand
- ( ) Object

CS201P - Introduction to Programming (Practical) (Regular Quiz 4)

Question # 3 of 10 (Start time: 07:57:34 AM, 02 July 2024)

Which of the following operator can be overloaded?

Select the correct option

- .* + , *
- ?
- .
- delete[]

CS201P - Introduction to Programming (Practical) (Regular Quiz 4)

Question # 1 of 10 (Start time: 07:56:16 AM, 02 July 2024)

Where can we declare a friend function in the class?

Select the correct option

- (●) Anywhere
- ( ) Main()
- ( ) Nowhere
- ( ) Void

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CS201P - Introduction to Programming (Practical) (Lab 9 Quiz)

Question # 1 of 5 (Start time: 06:01:43 PM, 25 June 2024)

Which function is automatically called in C++ if we do not define it in a class?

Select the correct option

- ○ Inline function
- ○ Parametrized Constructor
- ● Default Constructor
- ○ Default and Parametrized Constructor

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CS201P - Introduction to Programming (Practical) (Regular Quiz 4)

Question # 1 of 10 (Start time: 08:35:15 PM, 02 July 2024)

In the syntax of the overloaded operator function given below:

Complex operator +(Complex &);

What is 'operator'?

Select the correct option

- Operand
- Keyword ✓
- Object
- Class

CS201P - Introduction to Programming (Practical) (Regular Quiz 4)

Question # 2 of 10 (Start time: 07:56:46 AM, 02 July 2024)

```
Complex  cadd ( Complex c1,  Complex  c2 ) ;
```

Which statement is true for above code?

Select the correct option

◉	It accepts two complex numbers as parameters and returns back the resultant complex number.
○	Define the function named Complex.
○	Class with name of Complex has been created.
○	Creating object of class Complex with name cadd with parameters.

CS201P - Introduction to Programming (Practical) (Lab 9 Quiz)

Question # 3 of 5 (Start time: 06:03:05 PM, 25 June 2024)

In C++, which operator is used to access the data members of the class?

Select the correct option

- ○ Dot
- ○ Not
- ○ And
- ○ Plus

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CS201P - Introduction to Programming (Practical) (Lab 9 Quiz)

Question # 4 of 5 (Start time: 06:03:40 PM, 25 June 2024)

Where to put inline function during the frequent calling inside the program from multiple source files?

Select the correct option

- ○ Header File
- ○ Outside the class
- ○ Main()
- ○ Inside the class

CS201P - Introduction to Programming (Practical) (Lab 9 Quiz)

Question # 5 of 5 (Start time: 06:04:20 PM, 25 June 2024)

Which of the following is not true about Destructor?

Select the correct option

- ○ Destructors cannot be used for memory manipulation.
- ○ Destructors cannot be overloaded.
- ○ Destructors don't return a value.
- ○ Destructors take no arguments

CS201P - Introduction to Programming (Practical) (Regular Q

Question # 4 of 10 (Start time: 08:37:22 PM, 02 July 2024)

How many objects are created for the class Date?

```
Date myDates[10] ;
```

Select the correct option

- 5
- 1
- 0
- 10 ✓

CS201P - Introduction to Programming (Practical) (Regular Quiz 4)

Question # 3 of 10 (Start time: 08:36:44 PM, 02 July 2024)

How many objects are initialized for the class Date?

Date myDates[10] ;

Select the correct option

○	1
○	7
○	10 ✓
○	0

CS201P - Introduction to Programming (Practical) (Regular Quiz 4)

Question # 2 of 10 (Start time: 08:35:49 PM, 02 July 2024)

Which one is correct syntax for declaration of a function which can return a reference?

Select the correct option

- &function_name datatype (parameter list)
- &datatype function_name (parameter list)
- datatype (parameter list) &function_name
- datatype& function_name (parameter list)

Apps

CS201P - Introduction to Programming (Practical) (Lab 10 Quiz)

Question # 2 of 5 (Start time: 02:32:13 PM, 04 July 2024)

In C/C++ language, memory at runtime is allocated from _____

330

Select the correct option

- ○ Hard disk
- ○ Free store(heap) ✓
- ○ Stack
- ○ ROM

CS201P - Introduction to Programming (Practical) (Regular Quiz 4)

Question # 10 of 10 (Start time: 08:42:27 PM, 02 July 2024)

Which header file is used for file manipulation?

Select the correct option

- ○ fstream.h
- ○ iomanip.h
- ○ filestream.h
- ○ iostream.h

What will be the output of following code?

```
#include <iostream>

#include <iomanip>

using namespace std;

main ()

{ float num=15.9999;

cout << setprecision (2) << num; }
```

Select the correct option

- 15.99
- 16 ✓
- 15.999
- 15

CS201P - Introduction to Programming (Practical) (Regular Quiz 4)

Question # 7 of 10 (Start time: 08:40:14 PM, 02 July 2024)

If the memory in the free store is not sufficient enough to fulfill the request, malloc () function returns ____

332

Select the correct option

- 0
- -1
- 1
- NULL ✓

Friend functions

Today, we are going to discuss a very interesting subject i.e. Friend Functions. We will see what is the relationship of friendship with our object-based programming. Before going into details of the subject, it is better to have a fresh look on the definition of 'class'. 'Class is a user defined data type'. The 'class' provides encapsulation facility to the programmer. We can gather data at some place and some function that manipulates that data. In the previous lecture, two keywords, 'private' and 'public' were introduced. We define data members as 'private' that are visible only from inside the class and hidden from the outside. However, 'public data member functions' is the interface of the class available for outside world. Objects are accessed by these functions that can manipulate the private data of the class. We cannot access the private data of the class directly. This concept of data encapsulation and data hiding is very important concept in software engineering. It allows us to separate the interface from the implementation of the class i.e. we can hide how we have done the task and make visible what to do. It is critically important for large and complex systems. Sometimes, a need may arise to access the private data of the class from outside.

Let's talk about the concept of friendship. What you see on the screen during the lecture is the picture of the instructor. This is the public interface. That is all you know. What is inside his mind you never know. It is all 'private'. The instructor has access to his own mind and feelings. But you do not have access to that. Do you know any human being who has access to your mind and feelings? What we call that human

CS201P - Introduction to Programming (Practical) (Lab 10 Quiz)

Question # 5 of 5 (Start time: 02:34:57 PM, 04 July 2024)

The data members that are visible only from inside the class and hidden from the outside known as

Select the correct option

- ○ Friend
- ○ Public
- ○ Private and Public
- ○ Private ✓

CS201P - Introduction to Programming (Practical) (Lab 9 and 10 Quiz)

Quiz Start Time: 01:19 PM, 27 January 202

Question # 1 of 10 (Start time: 01:19:21 PM, 27 January 2023)

Total Mark

Which function is automatically called in C++ if we do not define it in a class?

Select the correct option

Reload Math Equations

- Default Constructor
- Parametrized Constructor
- Default and Parametrized Constructor
- Inline function

CS201P - Introduction to Programming (Practical) (Lab 9 and 10 Quiz)

Quiz Start Time: 01:19 PM, 27 January 202

Question # 9 of 10 (Start time: 01:30:45 PM, 27 January 2023)

Total Marks

calloc() functions allocates multiple blocks of memory and each block have _____?

Select the correct option

Reload Math Equations

- Different length
- Same size
- Different size
- Same length

Click to Save Answer & Move to Next Question

Question # 3 of 10 (Start time: 02:49:20 PM, 28 January 2023) **Total Marks**

How many objects are initializing in this statement of code:

```
Date myDate [10] = { Date(09, 03, 1970), Date(08, 23, 1974) }
```

Select the correct option

Reload Math Equations

- 2
- 10
- 3
- 1

Click to Save Answer & Move to Next Question

CS201P - Introduction to Programming (Practical) (Regular Quiz 3)

Quiz Start Time: 06:30 AM, 29 January 2023

Question # 3 of 15 (Start time: 06:32:39 AM, 29 January 2023)

Total Marks:

Functions **seekg ()** and **seekp ()** require an argument of type _____ to let them know how many bytes to move forward or backward.

Select the correct option

Reload Math Equations

- float
- double
- long
- int

CS201P - Introduction to Programming (Practical) (Lab 9 and 10 Quiz)

Quiz Start Time: 01:19 PM, 27 January 202

Question # 10 of 10 (Start time: 01:31:50 PM, 27 January 2023)

Total Marks

Where to put inline function during the frequent calling inside the program from multiple source files?

Select the correct option

Reload Math Equations

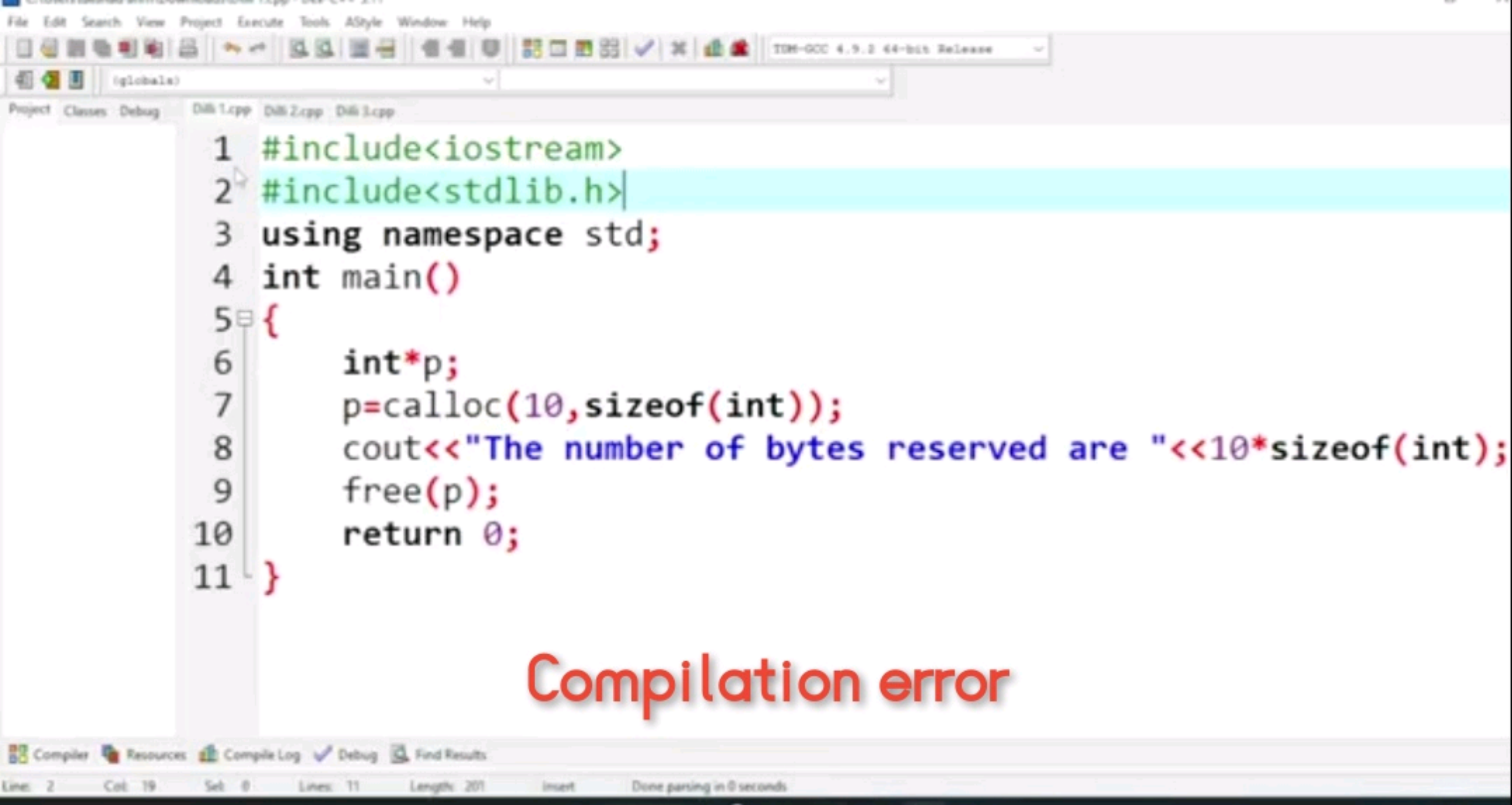
- Header File
- Inside the class
- Outside the class
- Main()

```
#include <iostream>
#include <iomanip>
using namespace std;
main ()
{
int num=7;
cout << setfill('*') << setw(4) << num << endl;
}
```


lect the correct option

Reload Math Equations

- 7****
- 7***
- ****7
- ***7


File Edit Search View Project Execute Tools AStyle Window Help
TDM-GCC 4.9.2 64-bit Release
(globals)
Project Classes Debug
Dilli 1.cpp Dilli 2.cpp Dilli 3.cpp
1 #include<iostream>
2 #include<stdlib.h>
3 using namespace std;
4 int main()
5 {
6 int*p;
7 p=calloc(10,sizeof(int));
8 cout<<"The number of bytes reserved are "<<10*sizeof(int);
9 free(p);
10 return 0;
11 }
Compilation error
Compiler Resources Compile Log Debug Find Results
Line: 2 Col: 19 Sel: 0 Lines: 11 Length: 201 Insert Done parsing in 0 seconds

Inline Functions

This is also one of the facilities provided by C++ over C. In our previous lectures, we discussed and wrote macros few macros like **max** and **circlearea**.

While using macros, we use the name of the macro in our program. Before the compilation process starts the macro names are replaced by the preprocessor with their definitions (defined with #define).

Inline functions also work more or less in the same manner as macros. The functions are declared inline by writing **inline** keyword before the name of the function. This is a directive to the compiler and it causes the full definition of the function to be inserted in each place the function is called. Inserting individual copies of functions eliminates the overhead of calling a function (such as loading parameters onto the stack)

how can we move forward and backward within a file. Suppose we want to open a file and start reading from 100th character. For this, we use **seekg ()** and **seekp ()** functions. Here **seekg ()** takes us to a certain position to start reading from while **seekp ()** leads to a position to write into. These functions **seekg ()** and **seekp ()** requires an argument of type **long** to let them how many bytes to move forward or backward. Whether we want to move from the beginning of a file, current position or the end of the file, this move forward or backward operation, is always relative to some position.. From the end of the file, we can only move in the backward direction. By using positive value, we tell these functions to move in the forward direction .Likewise, we intend to move in the backward direction by providing a negative number.

By writing:

in curly braces. “Ali” will be assigned to *name*, “CS201” will be assigned to the *course*, 19 to *age* and 2002 to *year*. So far we have not touched these data members directly.

To access the data members of structure, dot operator (.) is used. Therefore while manipulating *name* of *s1*, we will say *s1.name*. This is a way of referring to a data member of a structure. This may be written as:

```
s1.age = 20;
s1.year = 2002;
```

The above statement will assign the value 20 to the *age* data member of structure *s1*. Can we assign a string to the name of *s1*? Write programs to see how to do this? You may need string copy function to do this. Also, initialize the pointers to structure and

calloc Function

The syntax of the calloc function is as follows.

void *calloc (size_t n, size_t el_size)

This function takes two arguments. The first argument is the required space in term of numbers while the second one is the size of the space. So we can say that w require **n** elements of type **int**. We have read a function **sizeof.** This is useful in th cases where we want to write a code that is independent of the particular machine that we are running on. So if we write like

void calloc(1000, sizeof(int))

The inline keyword is only a suggestion to the compiler. Functions larger than a few lines are not expanded inline even if they are declared with the inline keyword.

If the inline function is called many times inside the program and from multiple source files (until now, usually we have been using only one source file) then the inline function is put in a header file. That header file can be used (by using #include) by multiple source files later.

Also keep in mind that after multiple files include the header file that contains the inline function, all of those files must be recompiled after the inline function in the header file is changed.

Now, we are going to cover exciting part of this lecture i.e., Function Overloading.

Here we have a declared a structure, 'student' containing different elements. The name of the student is declared as char array. For the address, we have declared an array of hundred characters. To store the GPA, we defined it as float variable type. The variables which are part of structure are called data members i.e. name, address and GPA are data members of *student*. Now this is a new data type which can be written as:

```
student std1, std2;
```

Here *std1* and *std2* are variables of type *student* like *int x, y;* x and y in this case are variables of *int* data type. This shows the power of C and C++ language and their extensibility. Moreover, it means that we can create new data types depending upon the requirements. Structures may also be defined at the time of declaration in the following manner:

Destructors

The name of the destructor is the same as that of a class with a preceding tilde sign (~). The ~ and name of the class is written as a single word without any space between them. So the name of the destructor of class **Date** will be **~Date**. The destructor can not be overloaded. This means that there will be only one destructor for a class.

A destructor is automatically called when an object is destroyed. When does an object gets destroyed? When we create an object in a function, this is local to that function. When the function exits the life of the object also comes to end. It means that the object is also destroyed. What happens if we declare an object in the main program? When the main program ends, its objects also comes to end and the destructor will be called.

The destructor is normally used for memory manipulation purposes. Suppose we have such a class that when we create an object of it then its constructor has allocated some

Constructors

Constructor is a special function, called whenever we instantiate an object of a class. If we do not define a constructor function in a class, the C++ provides a default constructor. It is executed at the time of instantiating an object.

To understand the basic function of constructor, we have to go back. While writing c++ Stroustrup noticed that the majority of programming problems, which we call bugs, occur due to the use of uninitialized data. That is, we declare variables and use them without providing them any value. For example, we declare an integer as *int i ;* And it is not initialized with a value like *i= 0; or i = 5;* And then somewhere in the

The same thing applies when we do bit shifts. If we shift a bit to the left in the binary system, it is multiplied by 2. If we do left shift again we are multiplying by 2 again. Same applies in the other direction. By shifting to the right, we will be dividing by 2 in the binary system and dividing by 10 in decimal system. In this process, the shifted digit/bit is discarded. When we do left shift, zeroes are inserted in the right side bits. The same applies to right shift, as zeros are inserted in the left side bits. But the situation will be different if we use signed numbers. As we know that in signed numbers the most significant bit is 1. Now you have to see that what happens while

The syntax of the prototype of the overloaded operator function is:

return-type operator *operator-symbol* *(parameter-list);*

operator is the keyword here. An example of this will be as follows:

Complex operator + (Complex &);

Date myDate [10] = { Date(09, 03, 1970), Date(08, 23, 1974) } ;

We are trying to declare an array of 10 Date objects while supplying only initialization values for the first two elements. At first, we might be doubtful if the statement is compiled successfully. Not only it compiles successfully but also does the initialization of the first two objects (*myDate[0], myDate[1]*). What will happen to the remaining objects in the array? Actually, all the *10* objects are created successfully by the above statement. The parameterized constructor is called for the first two objects (*myDate[0], myDate[1]*) and parameterless constructor is called for the remaining objects (*myDate[2], myDate[3], ..., myDate[9]*).

You might have noticed that at the array initialization stage, we have explicitly called parameterized constructor of *Date* for every object. We may specify only the argument when a constructor with only one parameter is called

As discussed earlier, we can determine the state of a stream. The states of the stream can be determined. For example, in case of *cin,* we can check where the end of file comes.

For state- checking, these stream objects have set of flags inside them. These flags can be considered as an integer or long integer. The bit position of these integers specifies some specific state. There is a bit for the end of file to test. It can be written as under:

```
cin.eof() ;
```

It will return the state of end of file. The bit will be set if the file comes to an end. Similarly, there is a *fail* bit. This bit determines whether an operation has failed or not.

There are two types of operators to overload:

1. Unary
2. Binary

Unary operators are the ones that require only one operator to work. Unary operators are applied to the left of the operand. For example, ^, &, ~ and !.

Binary operators require two operands on both sides of the operator. +, -, *, /, %, =, < and > are examples of binary operators.

The complete list of C++ operators that can be overloaded is as follows:

+	-	*	/	%	^	&
|	~	!	=	<	>	+=
-=	*=	/=	%=	^=	&=	|=
<<	>>	>>=	<<=	==	!=	<=

class. There should also be a public interface so that it can be called from outside.

Constructors

Constructor is a special function, called whenever we instantiate an object of a class. If we do not define a constructor function in a class, the C++ provides a default constructor. It is executed at the time of instantiating an object.

To understand the basic function of constructor, we have to go back. While writing c++ Stroustrup noticed that the majority of programming problems, which we call bugs, occur due to the use of uninitialized data. That is, we declare variables and use them without providing them any value. For example, we declare an integer as *int i ;* And it is not initialized with a value like *i= 0; or i = 5;* And then somewhere in the

Friend functions

Today, we are going to discuss a very interesting subject i.e. Friend Functions. We will see what is the relationship of friendship with our object-based programming. Before going into details of the subject, it is better to have a fresh look on the definition of 'class'. 'Class is a user defined data type'. The 'class' provides encapsulation facility to the programmer. We can gather data at some place and some function that manipulates that data. In the previous lecture, two keywords, 'private' and 'public' were introduced. We define data members as 'private' that are visible only from inside the class and hidden from the outside. However, 'public data member functions' is the interface of the class available for outside world. Objects are accessed by these functions that can manipulate the private data of the class. We cannot access the private data of the class directly. This concept of data encapsulation and data hiding is very important concept in software engineering. It allows us to separate the interface from the implementation of the class i.e. we can hide how we

The inline keyword is only a suggestion to the compiler. Functions larger than a few lines are not expanded inline even if they are declared with the inline keyword.

If the inline function is called many times inside the program and from multiple source files (until now, usually we have been using only one source file) then the inline function is put in a header file. That header file can be used (by using #include) by multiple source files later.

Also keep in mind that after multiple files include the header file that contains the inline function, all of those files must be recompiled after the inline function in the header file is changed.

Now, we are going to cover exciting part of this lecture i.e., Function Overloading.

definition of the class, the actual code of its functions and the manipulations are provided along with as object code. Here in the template case, the compiler makes a copy of the source code and converts it to object code. We cannot give the declaration of the template function in one file and the definition in some other. If we store these in different files, it will not compile. It does not have real data type and still has parameterized or generic data type in it. So the declaration and definition of a template function should be in the same file. We will include this file or keep the template with our main program. Then the copies of code will be automatically generated. So it is a slight limitation with templates. In any case, template class or template functions are for our own use. We do not write template functions as libraries for other people as it is like giving away our source code.

For template functions, we must have at least one generic argument. There may be more than one generic arguments. We have to pass it to pieces of data to be swapped.

Tips

- ***Stream insertion (<<) and extraction operators (>>) are always implemented as non-member functions.***
- operator << *returns a value of type* ostream & *and* operator >> *returns a value of type* istream & *to support cascaded operations.*
- *The first parameter to* operator << *is an* ostream & *object.* cout *is an example of an* ostream *object. Similarly first parameter to* operator >> *is an* istream & *object.* cin *is an example of an* istream *object. These first parameters are always passed by reference. The compiler won't allow you to do otherwise.*

mean that the default constructor is called when the *PersonInfo* object is constructed but we can always specify a member initializer to call a parameterized constructor.
A colon is placed after the parameter list of the containing class's constructor, followed by the name of the member and a list of arguments as shown below:


```
class   PersonInfo
{
        public:
            PersonInfo( char * nm, char * addr, int   month, int   day, int  year );
            // ...
        private:
            // ...
  };


PersonInfo::PersonInfo( char * nm, char * addr, int month, int day, int year )
```

for only the immediately next output. How can we write our own manipulator? To determine it, it is better to understand what parameter-less manipulators are? These are the manipulators without any parameter like *endl*. This is a parameter-less built-in manipulator that inserts the new line besides flushing the buffer. If we want to write our own manipulator, how can we do this? In case of operator overloading, it is pre-requisite to know that where the manipulator is used and what will be on its left-hand and right-hand sides. On reviewing the manipulators, you will find a stream object, normally on the left-hand side. Here, we are talking about *ostream*, an output stream. So that object will be *cout*. The *cout* will take this manipulator to carry out some manipulation. These are written in cascading style as *cout << manipulator << "some data" << endl*. With this cascading style, you can get a hint about the operation of this manipulator and its requirements. The point is, the left-hand side is going to be *ostream* object that will call the manipulator. What will be passed to the manipulator and what will be the return type.

floats or doubles. Thus, stack is a good candidate for a template class. It means that when we instantiate the class for creating objects, a stack of integers or floats is required. The behavior of the compiler in template classes is the same as in template functions. If we want to instantiate a template class with a new data type, the compiler will generate a new version of the class with the specific data type at the place of T in the template class.

We know that a class is a user-defined data type. With the help of a template class, we make another class of the user-defined data type. In other words, things are not restricted to creating copies of class only for native data type. Copies of class of our own data type can also be created. It is a case of a real extensibility.

Let's see the syntax of this generic template class. It is similar to the simple template function in which we write *template <class T>*. Here T is the placeholder that will be replaced by the data type when we use it. The syntax of the template class is

```
template <class T>
```

in different files, it will not compile. It does not have real data type and still has parameterized or generic data type in it. So the declaration and definition of a template function should be in the same file. We will include this file or keep the template with our main program. When it will be used, the copies of code will be automatically generated. So it is a slight limitation with templates. In any case, template class or template functions are for our own use. We do not write template functions as libraries for other people as it is like giving away our source code.

For template functions, we must have at least one generic argument. There may be more than one generic arguments. We have to pass it to pieces of data to be swapped. We can write swap function as:

Call by Value

Whenever we call a function and pass an argument, an object or variable to the function, then by the default rule of C and C++, it is a call by value. It means that the original data remains at its place and a temporary copy of it is made and passed to the function. Whatever the function does with this copy, the original value, in the calling function, remains intact. This

Call by Reference

If we want a function to change something in the original object variable or whatever, that variable or object by reference would be passed. To do this, we don't make temporary copy of that object or variable. Rather, the address of the variable is sent. When the function manipulates it, the original object will be manipulated, effecting change in its values. The use of call by reference is also important for the sake of efficiency. If we have a large object, sending of its copy will be something

- #include <filename>
- #include “filename”
- #define
- #undef
- #ifdef
- #ifndef
- #if
- #else
- #elif
- #endif
- #error
- #line
- #pragma
- #assert

Preprocessor directives of C-Language

CS201P

1) Bool data type takes __2__ values.

2) Which function is automatically called when an object of a class is initiated?

Constructors

3) Which function is automatically called when an object of a class is destroyed?

Destructors

4) In template class, compiler makes a copy of .... and converts into _____.

source code, object code

5) "endl" is a type of ____ manipulator.

Parameter-Less

6) Which statement about pointer is not true?

Pointer contains a value

True statements about pointer is:

Pointer can be "void"

Pointer contains a memory address. Points to an area in memory.

7) We cannot declare a function as a friend of _____ class?

istream or ostream

8) A variable declared inside a code block becomes the Local variable for that block.

Pray for ME

Jazak Allah.