Software Development Lab – II [15B17CI271]
Assignment Sheet
Week 3

COURSE OUTCOMES		COGNITIVE LEVELS
C173.1	Write programs in C++ to implement OOPs concepts related to objects, classes, constructor, destructor, and friend function.	Apply Level (Level 3)
C173.2	Write programs in C++ using OOPs concept like encapsulation, inheritance, polymorphism and abstraction.	Apply Level (Level 3)
C173.3	Write programs in C++ using Standard Template Library.	Apply Level (Level 3)
C173.4	Perform exception handling in C++ programs.	Apply Level (Level 3)
C173.5	Write MySQL queries to perform operations like ADD, DELETE, UPDATE, SELECT on relational databases.	Apply Level (Level 3)

Note: Students are advised to submit their solutions to respective lab faculty. The solution file must be named as "rollno_first name_w3.doc" (here w3 represents week3).

Q1. WAP to print the area and perimeter of a triangle having sides 3, 4, 5 units creating a class Triangle with a function to print area and perimeter.

Q2. Modify Q1 to add a constructor that takes the sides as parameters.

Q3. Create a class named Complex, with separate functions to get real parts, complex parts and print Sum, Difference and Product of the complex numbers.

Q4. WAP in C++ to demonstrate the following:

(i) Create a class called First with data member as string studentname, and member function called printname

(ii) Your program should print the studentname by accessing the member function.

Q5. WAP in C++with the following requirements:

(i) Create a class called Second with int type person id

(ii) Create a default and parameterized constructors

(iii) Create two objects. obj1 will call default constructor to print person id, obj1 will call the parameterized constructor to print person id

Q6. Write a C++ program to print the area of a rectangle by creating a class named Area having two functions. First named setDim() that takes length and breadth of the rectangle and the second named getArea() that retunrs the area of the rectangle.

Q7. Write a C++ program to calculate the average marks of two students. Create a class named Student. Create a parameterized constructor that initializes student marks and a member function calculateAverage() that accepts Student objects as parameters.

Q8. Write a C++ program to create a class that can hold private data members such as – Enrolment number, Name, Branch and CGPA. Include the constructors for initialising data members as follows,

(i) Initialise the enrolment no., name, branch and CGPA
(ii) Initialise the enrolment no., name, CGPA (Default branch='CSE')
(iii) Initialise enrolment no., name, branch and CGPA with default values [1, "Unknown", "CSE", 6]

Also include get and set functions for each of the data members. Create objects to call different constructors and update CGPA value of any of the objects created. Display the updated CGPA along with the student's detail on the console.

Q9. Write a C++ program to calculate electricity bill using Class.

- To Calculate Electricity Bill Of Person using Class,first create and call get( ) function to take input details of the customer.
- Create and call a new function i.e calc_bill( ) to calculate the total bill of the customer on the behalf of units consumed by the customer .
- Create the put( ) function to print or display customer or person electricity bill on the screen.

Q10. What would be the output of the following program in C++?

```
// C++ program to explain constructors

#include<iostream>
usingnamespacestd;

classLocation
{
private:
   inta, b;
public:
   Location(inta1, intb1) { a = a1; b = b1; }

   // Copy constructor
   Location(constLocation&l2) {a = l2.a; b = l2.b; }

   int getA()         {  returna; }
   int getB()         {  returnb; }
};

int main()
{
   Locationl1(10, 15); // Normal constructor is called here
   Locationl2 = l1; // Copy constructor is called here
```

```
    // Let us access values assigned by constructors
    cout <<"l1.a = "<<l1.getA() <<", l1.b = "<<l1.getB();
    cout <<"\np2.a = "<<l2.getA() <<", l2.b = "<<l2.getB();

    return 0;
}
```