**DEPARTMENT: COMPUTER ENGINEERING**

**SUBJECT: OBJECT ORIENTED PROGRAMMING LABORATORY(210248)**

**CLASS: S.E. SEMESTER:** I

**Instructions:**

• To design assignments list by selecting at least 12 suitable assignments from group A, B,

and C along with compulsory assignment.

• Select at least 5 from group A, 4 from group B, 3 from group C

• Program codes with sample output of all performed assignments are to be submitted as

softcopy.

**GROUP LAB**

**EXP NO**

**TOPIC OF ASSIGNMENT**

**Compulsory Assignment**

**1** Install, Configure 64 bit Linux Operating Systems, study basic architecture,

memory system, and learn basic administration

**GROUP A (at least 5)**

**2** Implement a class Complex which represents the Complex Number data

type. Implement the following operations:

1. Constructor (including a default constructor which creates the

complex number 0+0i).

2. Overloaded operator+ to add two complex numbers.

3. Overloaded operator\* to multiply two complex numbers.

4. Overloaded << and >> to print and read complex Numbers.P:F:-LTL-UG/01/R0

**A**

**3** Implement a class Quadratic that represents degree two polynomials i.e.,

polynomials of type ax

2

+bx+c. The class will require three data members

corresponding to a, b and c.

Implement the following operations:

 A constructor (including a default constructor which creates the 0

polynomial).

 Overloaded operator+ to add two polynomials of degree 2.

 Overloaded << and >> to print and read polynomials. To do this,

you will need to decide what you want your input and output format

to look like.

 A function *eval* that computes the value of a polynomial for a given

value of x.

 A function that computes the two solutions of the equation ax

2

+bx+ c=0.

**4** Write a C++ program to create a calculator for an arithmetic operator (+, -,

\*, /). The program should take two operands from user and performs the

operation on those two operands depending upon the operator entered by

user. Use a switch statement to select the operation. Finally, display the

result.

Some sample interaction with the program might look like this:

*Enter first number, operator, second number: 10 / 3*

*Answer = 3.333333*

*Do another (y/n)? y*

*Enter first number, operator, second number: 12 + 100*

*Answer = 112*

*Do another (y/n)? n*

**5** Develop an object oriented program in C++ to create a database of student

information system containing the following information: Name, Roll

number, Class, division, Date of Birth, Blood group, Contact address,

telephone number, driving license no. etc Construct the database with

suitable member functions for initializing and destroying the data viz

constructor, default constructor, Copy constructor, destructor, static member

functions, friend class, this pointer, inline code and dynamic memory

allocation operators-new and delete.

**6** Create employee bio-data using following classes

i) Personal record

ii) Professional record

iii) Academic record

Assume appropriate data members and member function to accept required

data & print bio-data. Create bio-data using multiple inheritances using

C++.

**GROUP B (at least 4)**

**7** Crete User defined exception to check the following conditions and throw

the exception if the criterion does not meet.P:F:-LTL-UG/01/R0

**B**

a. User has age between 18 and 55

b. User has income between Rs. 50,000 – Rs. 1,00,000 per month

c. User stays in Pune/Mumbai/Bangalore/Chennai

d. User has 4-wheeler

Accept age, income, city, vehicle from the user and check for the conditions

mentioned above. If any of the condition does not met then throw an

exception.

**8** Write a C++ program that creates an output file, writes information to it,

closes the file and open it again as an input file and read the information

from the file.

**9** Write a C++ program using command line arguments to search for a word

in a file and replace it with the specified word. The usage of the program is

shown below.

***$ change <old word> <new word> <file name>***

**10** Write a function template selection sort. Write a program that inputs, sorts

and outputs an int array and a float array.

**Group C (At least 3)**

**11** Write C++ program using STL for implementation of stack & queue using

SLL

**12** Write C++ program using STL for Dequeue (Double ended queue)

**13** Write C++ program using STL for sorting and searching with user-defined

records such as Person Record (Name, birth date, telephone no), item record

(item code, item name, quantity and cost)

**Mini-projects**

**14** Design and develop the Tic-Tac-Toe game using C++

**15** Develop a Supermarket Billing System using C++. The key features of this

application are listed below :