COLLEGE OF ENGINEERING TRIVANDRUM
DEPARTMENT OF COMPUTER APPLICATIONS
OBJECT ORIENTED PROGRAMMING LAB(20MCA131)
EXERCISES

Cycle-I

1. Define a class ‘product’ with data members pcode, pname and price. Create 3 objects of the class and find the product having the lowest price.
2. Write a program to read 2 matrices from the console and perform matrix addition.
3. Write a program to read a matrix from the console and check whether it is symmetric or not.
4. Define a class to represent complex numbers. Create 2 objects of the class and add them.
5. Create a class named CPU with attribute price. Create inner class Processor (no. of cores, manufacturer) and static nested class RAM (memory, manufacturer). Create an object of CPU and print information of Processor and RAM.

Cycle-II

6. Write a program to create a class for Employee having attributes eNo, eName eSalary. Read n employ information and Search for an employee given eNo, using the concept of Array of Objects.
7. Define a class named Book with details such as ISBN, title, author, price and publisher. Create an array of 5 book objects. Display the book details after sorting based on title.
8. Define a class for performing string manipulations. Write a menu-driven program to perform the following operations (without using built-in functions):
    a) Count the number of occurrences of each word in the given sentence.
    b) Replace a particular word with another word.

c) Reverse each word in a sentence.

Cycle-III

9. Write a program to find the area of rectangle, circle and square using overloaded functions.

10. Create a class ‘Employee’ with data members Empid, Name, Salary, Address and constructors to initialize the data members. Create another class ‘Teacher’ that inherits the properties of class employee and contain its own data members department, Subjects taught and constructors to initialize these data members and also include a display function to display all the data members. Use an array of objects to display details of N teachers.

11. Create classes Student and Sports. Create another class Result inherited from Student and Sports. Display the academic and sports score of a student.

12. Create an interface having prototypes of functions area() and perimeter(). Create two classes Circle and Rectangle which implement the above interface. Create a menu driven program to find the area and perimeter of objects.

Cycle-IV

13. Create a Graphics package that has classes and interfaces for figures Rectangle, Triangle, Square and Circle. Test the package by finding the area of these figures.

14. Create an Arithmetic package that has classes and interfaces for the 4 basic arithmetic operations. Test the package by implementing all operations on two given numbers.

15. Find the average of N positive integers, raising a user defined exception for each negative input.

16. Define 2 classes; one for generating a multiplication table of 5 and other for displaying first N prime numbers. Implement using threads. (Thread class)

17. Define 2 classes; one for generating Fibonacci numbers and other for displaying even numbers in a given range. Implement using threads. (Runnable Interface)