VIT
Vellore Institute of Technology

SLOT : E2

SCHOOL OF INFORMATION TECHNOLOGY AND ENGINEERING

CONTINUOUS ASSESSMENT TEST – II – WINTER SEMESTER - 2022-23

Programme Name & Branch: B.TECH
Class Number(s): VL2022230506398
Course Code: BCSE102L
Course Name: Structured and object Oriented Programming
Faculty Name(s): Bhuvana S
Exam Duration: 90 Mins
Maximum Marks: 50

ANSWER ALL THE QUESTIONS (5 X 10 = 50 MARKS)

Q.NO.	Questions	Max. Marks
1.	Read a list of numbers 2,4,1,8,9,5,3,0 from user and store it in an one dimensional using dynamic memory allocation method. a)Write a C program to sort a list of above array elements and display. **(5 Marks)** b)Write a C program to search a given elements of above one dimensional array and display the result as "FOUND " if search is successful else display the result as "NOT FOUND".**(5 Marks)**	10
2.	Create a structure named ***Time*** with data members Hour (unsigned int), Minute (unsigned int), Second (unsigned int). Write an interactive **C program** which reads two sets of Time inputs(Hours, Minutes, Seconds) from user and initialize in two structure variables namely ***Time1,Time2*** and pass the structure variables ***Time1,Time2*** as arguments to function ***compute( )***.In function, ***compute( )*** write appropriate code to add two time variables and display the result. **Input : Enter hours ,Minutes and Seconds** Hours: 5;Minutes: 10;Seconds: 45 Hours: 6;Minutes: 40;Seconds: 45 **Total Time is: 11 hours 51 minutes 30 seconds**	10
3	Imagine a tollbooth at a bridge. Cars passing by the booth are expected to pay a 50 cent toll. Mostly they do, but sometimes a car goes by without paying. The tollbooth keeps track of the number of cars that have gone by, and of the total amount of money collected.Model this tollbooth with a class called ***tollBooth***. The two data items are a type unsigned int to hold the total number of cars, and a type double to hold the total amount of money collected. A ***constructor*** initializes both of these to 0. A member function called ***payingCar()*** increments the car total.and adds 0.50 to the cash total. Another function called ***nopayCar()***, increments the car total but adds nothing to the cash total. Finally, a member function called ***display()*** compute the total amount received from payingCar and total no of car crossed under the category nopayCar. Write a C++ program that allows the user to choose option 1 to count a paying car, option 2 to count a nonpaying car and option 3 to display the total cost and total car. providing other option should cause the program to terminate. The program should repeatedly get the input until user press -1. **Input:** Enter the option:1 payingcar() is invoked Enter the option:2 nopaycar() is invoked Enter the option:2 nopaycar() is invoked Enter the option:3 **Total amount paid under payingcar : 1.00** Tot_car crossed under nopaycar :2 Enter option:-1;End	10

4. **a) What will be the output of the following code segment? (4 Marks)**

```
#include<stdio.h>
int main()
{
        int track[]={10,20,30,40},*striker;
        striker=track;
        track[1]+=30;
        printf("\n Striker %d",*striker);
        *striker-=10;
        striker++;
        printf("Next@%d",*striker);
        striker+=2;
        printf("Last@%d",*striker);
        printf("Reset To %d",track[0]); return 0;}
```

b) For the following code segment, answer the given questions below.

```
#include <iostream>
using namespace std; .
class Class1 {
private: int x,y;
public: void xx( )
        { cout<<"inside base class");}
protected:
  void fun1()
  {
    cout << "Fun1() called" << endl; }};
class Class2 : public Class1 {
protected: int m,n;
public:
  void fun2()
  {
    cout << "Fun2() called" << endl;}};
class Class3 : Class2 {
public:
  void fun3() {
    cout << "Fun3() called" ; }};
int main()
{
  Class3 OB;  OB.fun1();  return 0;}
```

a) Identify the error in the above code segment. (2 Marks)
b) Write down the data member inherited by class2. (2 Marks)
c) List the member function accessible from class3. (2 Marks)

10

5. Create a class called ***door*** which has no_of_door, unit_cost,total_cost_door as the data members. define member function named ***get_door()*** to get the details of door and find the total cost. Create another class called ***window*** which contains no_of_windows, unit_price and total_cost_window as the data members also define member function called ***get_window()*** to read the details of the window and find the total cost of the windows. Create a new class ***house*** by inheriting door and window class. It has data members no_of_squarefeet and cost_square as the data members. define appropriate member function in house class to get the input details and compute the total cost of constructing a house.Construction cost includes total square feet cost ,total no of door cost and total no of window cost.Write a C++ program to model the above relationship also specify what type of relationship this model belong to.

10