Dr Meghna Dhalaria — 5/12/2022 (110) (M)

National Institute of Technology Hamirpur

Department of Computer Science and Engineering

Object Oriented Programming (CS-211)

B. Tech & Dual Degree (Computer Science & Engineering)

End Semester Examination (05-12-2022)

Max Marks: 50 **Total No of Pages-2** **Time: 3:00 Hours**

Note: Attempt all the questions.

1. What will be the output of following programs? State its logic also.

   a.
```
class Base1 {
public:
Base1( )
{ cout << " Hello" << endl; } };
class Base2 {
public:
Base2( )
{ cout << "World" << endl; } };
class Derived: public Base1, public Base2 {
public: Derived ( )
{ cout << "Hello World" << endl; } };
int main()
{     Derived d;        return 0;   }
```
   (1)

   b.
```
int &fun() {   static int a = 10;   return a;  }
int main() {    int &y = fun();  y = y +30;  cout<<fun();
return 0;    }
```
   (1)

   c.
```
int main()
{       float x=5.999;      float *y,*z;
        y=&x;     z=y;
        cout<<x<<","<<*(&x) <<","<<*y<<","<<*z<<"\n";
        return 0;    }
```
   (1)

   d.
```
int main()
{        const int i=20;
        const int *const ptr=&i;
        (*ptr)++;  int j=15;  ptr=&j;
        return 0; }
```
   (1)

   e.
```
int main()
{       int a=32,*ptr=&a;
        char ch='A', &cho=ch;
        cho+=a; *ptr+=ch;
        cout<<a<<","<< ch<<endl;
        return 0;   }
```
   (1)

2. **(a)** Write a program that uses a "stock.dat" having item name, item code and cost. Perform the following operation on the file. **(i)** Add a new item to the file **(ii)** Modify the details of an item **(iii)** Display the contents of the file. **(6)**

(b) Explain the role of seekg(), seekp(), tellg(), tellp()function in the process of random access in a file. (2)

3. What is need of exception handling in C++ programming? Explain with an example how exceptions are handled in C++. Briefly describe the hierarchy of exception classes in C++ standard library. (7)
4. Explain various components of Standard Template Library. Write a program using function template to find the cube of a given integer, float and a double number. (7)
5. (a) Why is it necessary to overload an operator? List atleast four rules for operator overloading. (3)

   (b) Write a program to add two distances comprising of feet and inches using operator overloading. (5)
6. (a) How does constructor is invoked? Can we take more than one constructor in a class? If yes/no, explain the need for such a situation. (4)

   (b) When do we make a virtual function "pure"? What are the implications of making a pure virtual function? Explain with the help of program? (4)
7. (a) What is inheritance? Why it is needed? Explain hybrid inheritance with the help of program. (4)
8. (b) How polymorphism is accomplished in c++? Give a suitable example. (3)