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B. Sc. in CSE Semester Final Examination, Autumn-2018
Course Code: CSE-1221 Course Title: Computer programming-I
Total marks: 50 Time: 2 hours 30 minutes

[Answer any *two* questions from **Group-A** and any *three* questions from **Group-B**; Separate answer script must be used for Group-A and Group-B.]

Group-A

1. a) Define operator overloading? Write the rules of operator overloading. 2
- b) Create a class float that contains one float data member. Overload an arithmetic operator so that it can operate on the objects of float. 3
- c) A friend function cannot be used to overload the assignment operator (=). Explain why? 2
- d) Answer the following questions with explanation 3
 - i) When an operator is overloaded, does it lose any of its original functionality?
 - ii) Can the precedence of an overloaded operator be changed? Can the number of operand be altered?
- 2.a) "A derived class can access all the members of its base class."-Is this statement true? Justify your answer. 2
- b) Design a program to implement multiple inheritance. 3
- c) How to invoke Base class's parameterized constructor inside Derived class's parameterized constructor? 3
- d) Write the output for the following code: 2

```
class P {  
public:  
    void print() { cout << " Inside P"; }  
};
```

```
class Q : public P {  
public:  
    void print() { cout << " Inside Q"; }  
};
```

```
class R: public Q { };
```

```
int main(void)  
{  
    R r;  
    r.print();  
    return 0;  
}
```

3. a) When a base class is inherited as public by the derived class, what happens to its public members? 3
What happens to its private members?
- b) class A 4
- ```

{
 public:
 void cheers()
 {
 cout<<"Class A: Hip-hip-hooray";
 }
};
class B
{
 public:
 void cheers()
 {
 cout<<"Class B: Hip-hip-hooray";
 }
};
class C:public A, public B
{

};
int main()
{
 C obc;
 obc.chears();
}

```
- Is there any error in this code? If yes, then correct the code. Display the output.
- c) Class D is derived from Class B. The class does not contain any data members of its own. Does the class D required constructor? If yes, why? 3

### Group-B

4. a) Write a program that implements the following ios functions: 4  
width() , precision() , fill() , setf()  
Write the output of your program.
- b) What is manipulator? Formulate the differences between manipulators and ios member functions. 2
- c) Design a program to write the following information to a file called WhoAreYou.txt : 4

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5. a) What is virtual function? Explain with example. 3
- b) What do you know about early binding and late binding? Discuss the pros and cons of them. 4
- c) What is abstract class? "Abstract class cannot be instantiated"- explain this statement. 3
6. a) What is an exception? What are the advantages of using exception handling mechanism in a program? 3
- b) Write a generic function, called min ( ), that returns the lesser of its two arguments. 3
- c) Show the general form of try, catch and throw for exception handling. In your own words describe their operations. 2
- d) What is the output of the following code? 2
- ```
#include <iostream>
#include <algorithm>
using namespace std;
int arr[] = {111,-999,222,-333,0,0,-555,555,999,333};
int main()
{
    sort(arr, arr+10);
    for(int j=0; j<5; j++){
        cout << arr[j] << ' ';
    }
    cout << endl;
    return 0;
}
```
7. a) What is generic function and generic class? 2
- b) What will happen if an exception is thrown for which there is no corresponding catch statement? 2
- c) What do you know about inserter? Briefly explain. 2
- d) What is STL? Define a container, an iterator and an algorithm as they relate to the STL. 4