



International Islamic University Chittagong

Department of Computer Science & Engineering

B.Sc. in CSE, Mid Term Examination, Autumn 2023

Course Code: CSE-1221 Course Title: Computer Programming II

Total Marks: 30 Time: 90 minutes

- 1 (a) Define OOP? Write down the brief description of the characteristics of OOP. 3
(b) What is the difference between object-oriented programming and structure programming? 2
(c) What is the output of the following programs? 3

```
#include <iostream>
#include <string>
using namespace std;
void demo()
{
    static int count = 0;
    cout << count << " ";

    count++;
}
int main()
{
    for (int i=0; i<5; i++){
        demo();
    }
    return 0;
}
```

```
#include<iostream>
using namespace std;
class MyClass{
public:
    MyClass(){cout<<"Constructing"<<endl; }
    ~ MyClass(){cout<<"Destructing"<<endl; }
};
MyClass aFunction(MyClass m){
    cout<<"In aFunction"<<endl;
    return m;
}
int main()
{
    cout<<"In Main"<<endl;
    MyClass ob;
    ob = aFunction(ob);
    cout<<"The End"<<endl;
    return 0;
}
```

- (d) What is access specifier? Why should we make some members private in a class? Discuss with example. 2
OR,
Explain why you must be careful when returning objects from a function by proper examples.

- 2 (a) Define constructor and Parameterized Constructor. Is there any way that we can use same constructor with different parameter list in a class? Discuss with example. 3

OR,

In which situations copy constructor is essential? Write a program by using copy constructor to support your answer.

- (b) What is automatic inline function? When should we use inline and when shouldn't? Give an example. 2
(c) What is the output of the following codes: 3

(A)

```
#include<iostream>
using namespace std;
int x = 10;
void fun(int x)
{
    cout << ::x << endl;
}
int main()
{
    fun(5);
    return 0;
}
```

(B)

```
#include<iostream>
using namespace std;

class Demo {
public:
    int i;
    Demo(int i) {
        this->i = i;
    }
};

main() {
    Demo m(5);
    cout<<m.i;
}
```

(d) How to use private member variables of a class in a non-member function? Explain with an example. 2

3 (a) Define function overloading. How a compiler can distinguish an overloaded function? Explain with example. 3

(b) Define default argument with example. 1

Find error(s) of following codes, write the error message or the output:

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```
#include <iostream>
using namespace std;

class printData {
public:
    void print(int i) {
        cout << i << endl;
    }
    void print(double f) {
        cout << f << endl;
    }
    void print(char* c) {
        cout << c << endl;
    }
};

int main() {
    printData pd;
    pd.print(500.263);
    pd.print(5);
    pd.print("Hello C++");
    return 0;
}
```

Ⓑ

```
#include<iostream>
using namespace std;

class amb{
public:
    int i, j;
    amb(){}
    amb(int x, int y){ i = x; j = y; }
    amb(int x = 0){ i = x;}
};

void func(amb a, amb &b){
    cout << a.i << endl;
}

void func(amb a, amb b){
    cout << b.j << endl;
}

int main(){
    amb ob1(12, 13), ob2(14, 15), ob3;
    func(ob1, ob2);
    return 0;
}
```

3

(c) Write a program to calculate area of a rectangle by creating a class called "Rect", where length and width are private members. Make a function called "new_rect" to add two rectangles and return the new one to the main function. 3

OR,

What issues arise when providing objects to a function using "Pass by value"? How do you fix it? Discuss with a suitable example.