

UNIVERSITY OF NEW YORK TIRANA

EXAMINATION PAPER:	ACADEMIC SESSION 2013/2014
DEPARTMENT:	Computer Science Department
COURSE:	M.Sc. in Computer Science
TITLE OF PAPER:	Foundation Programme Part-2
Date:	January 8, 2014
Duration:	3 hours
Start Time:	6 PM

YOU MUST ANSWER ALL THE QUESTIONS.

CALCULATORS AND OTHER ELECTRONIC DEVICES ARE NOT PERMITTED

Section-A

Total 50 points

1.	What is the difference between a value returning function and a void function? Give an	
	example of each.	[5 points]
2.	What is the difference between an actual parameter and a formal parameter? Explain with	
	an example.	[5 points]
3.	Explain the difference between a counter-controlled loop and a sentinel-controlled loop	
	in C++.	[5 points]
4.	Explain the difference between while loop and a "do-while" loop with an example.	
		[5 points]
5.	Explain the difference between an assembler, compiler, and interpreter.	[5 points]
6.	What is the output of the following program?	[5 points]
	<pre>#include <iostream></iostream></pre>	
	using namespace std;	
	int main()	
	{	
	int x, y, z;	
	x = 4; y = 5;	
	z = y + 6;	
	do	
	{	
	cout << z << " ";	
	z = z + 7;	
	}	
	while ((($z - x$) % 4) != 0);	

}

cout << endl;</pre>

return 0;

```
7. What is the output of the following code?
                                                                                   [5 points]
   #include <iostream>
    using namespace std;
   int main()
    {
           int num = 12;
           while (num \ge 0)
           {
                  if (num % 5 == 0)
                  {
                          num++;
                          continue;
                  }
                  cout << num << " ";
                  num = num - 2;
           }
           cout << endl;
    }
8. What is the output of the following program?
                                                                                   [5 points]
    #include <iostream>
    using namespace std;
   void tryMe(int& v);
   int main()
    {
           int x = 8;
           for (int count = 1; count < 5; count++)</pre>
           tryMe(x);
           return 0;
```

void tryMe(int& v) { static int num = 2; if (v % 2 == 0) { num++; v = v + 3;} else { num--; v = v + 5;} cout << v << ", " << num << endl; } 9. What is the output of the following program? [5 points] #include <iostream> using namespace std; int main() { int j; int one [5]; int two [10]; for (j = 0; j < 5; j++) one [j] = 5 * j + 3;cout << "One contains: ";</pre> for (j = 0; j < 5; j++) $cout <\!\!< one~[j] <\!\!< "";$

}

```
cout << endl;
          for (j = 0; j < 5; j++)
           {
                  two[j] = 2 * one[j] - 1;
                  two [j + 5] = one[4 - j] + two [j];
           }
          cout << "Two contains: ";</pre>
          for (j = 0; j < 10; j++)
          cout << two [j] << " ";
          cout << endl;
          return 0;
   }
10. What is the output of the following program?
                                                                                   [5 points]
   #include <iostream>
   using namespace std;
   int x;
   void summer(int&, int);
   void fall(int, int&);
   int main()
   {
          int intNum1 = 2;
          int intNum2 = 5;
          x = 6;
          summer(intNum1, intNum2);
          cout << intNum1 << " " << intNum2 << " " << endl;
          fall(intNum1, intNum2);
          cout << intNum1 << " " << intNum2 << " " << x << endl;
          return 0;
   }
   void summer(int& a, int b)
   {
          int intNum1;
```

```
intNum1 = b + 12;
a = 2 * b + 5;
b = intNum1 + 4;
}
void fall(int u, int&v)
{
    int intNum2;
    intNum2= x;
    v = intNum2 * 4;
    x = u - v;
}
```

Section-B

Total 50 points

Theory questions – 30 points, each question is 5 points

- 1. Explain the difference between a primitive type and a reference type. Give an example.
- 2. What is method overloading? How does the compiler distinguish among overloaded methods?
- 3. How are passed arrays to methods in Java? Why?
- 4. What is Composition in classes? Give an example.
- 5. Explain shadowing? How can we avoid it with this? Give an example.
- 6. Give an example of abstract superclass.

Laboratory questions – 20 points

- 1. Write a Java program that takes from input 10 numbers and calculates the maximum of these. Print a message showing the maximum. (5 points)
- 2. Write a Java program that generates 500 random numbers from 1 to 1000 and counts how many of them are smaller than 500. Print this number. (5 points)
- 3. Write a program that fills with random Double numbers from 1 to 100 a table 100x100. Then the program should fill another table where each element is the square root of the corresponding element in the first table. Print the two tables. (10 points)