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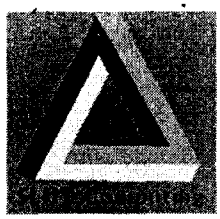

SLIIT Computing (Pvt) Ltd.

Bachelor of Information Technology

Final Examination
Year 1, Semester 1, 2006
Thursday, 18th May 2006

Introduction to Programming(C/C++) (N102)

Duration: 3 Hours
(Time **9.00 a.m. – 12.00 noon.**)

Instructions to Candidates

- This paper contains **FIVE (5)** questions on **SIX (6)** Pages.
- Answer **ALL** questions in the **WORKBOOK** provided.
- The entire exam is worth 100 points. The point value of each question is given.

Question 1

1) Correct the following program

```
int main() {
cout<< "Hello world"
endl
}
```

(5 Marks)

2) Why is the function **main** so special?

(2 Marks)

3) If there are errors, correct and rewrite the following program.

```
int main()
{
cout<<  Is there a error here?" ;
}
```

(3 Marks)

4) Write a C ++ program to display the following output using nested loops.

```
[ 0  0  0 ]
[ 0  0  1 ]
[ 0  0  2 ]
[ 0  1  0 ]
[ 0  1  1 ]
[ 0  1  2 ]
    ⋮
[ 2  2  2 ]
```

(5 Marks)

5) Write a C++ program that prepares a table of squares and cube of numbers from 1 to 20.

Number	Square	Cube
1	1	1
2	4	8
.	.	.
.	.	.
20	400	8000

(5 Marks)

Question 2

1) Write a C program to determine whether a number is 'odd' or 'even' and print the message.

NUMBER IS EVEN
Or
NUMBER IS ODD

(5 Marks)

2) Write a C program that will evaluate the following function.

$$y = \begin{cases} 1 & \text{for } x > 0 \\ 0 & \text{for } x = 0 \\ -1 & \text{for } x < 0 \end{cases}$$

(5 Marks)

3) Write a C program to input a series of temperatures terminated by –999.Find the minimum, maximum and the average of the list of temperatures.

(10 Marks)

Question 03

1)

a. Write a function that determines the minimum, maximum array of float values.

(4 Marks)

b. Write a function that prints the elements of array of float values.

(2 Marks)

c. Write a C++ program that makes use of above functions, determines the smallest value, the largest value and prints the elements in the array.

e.g.
float height[] = {5.5,5.7,4.8,6.0,5.6}

The values in the array are: 5.5 5.7 4.8 6.0 5.6
The Smallest Value: 4.8
The Largest value: 6.0

(4 Marks)

2) Write a value returning function that calculates and returns the sum of the elements in a two dimensional array of integer values. Assume that global constant ROWS contain the number of rows in the array. The array and the number of columns in array should be parameters to the function.

(10 Marks)

Question 4

1) Write a C ++ Program to calculate the power of a given floating point number using a recursive function

   e.g. power(2,5) = 8

   (6 Marks)

2) Write a recursive function **stringReverse** that takes a character array containing a string as an argument, prints the string backwards. The function should stop processing and return when the terminating null character is encounted.

   (6 Marks)

3) Write a C++ program that inputs a fraction character by character and then converts this into a floating-point number.

   e.g .345

   The first character it should accept should be a decimal point '.'
   The remaining valid characters would be digits.

   If the user enters an invalid character it should ignore them.

   e.g **User Types – io.a.57g8**

   Your program should interpret this as **.578** and convert this into a floating-point number

   (8Marks)

Question 05

1) What is a pointer?

(1 Mark)

2) List three advantages of using pointers.

(1 Mark)

3) Fill in the blanks.

```
int main()
{
int intVal;
double doubleVal;
```

a) [ ] // Declare a pointer called ptrInt for an integer.

b) [ ] // Declare a pointer called ptrDouble for a double variable

c) [ ] // Initiate ptrInt

d) [ ] // Initiate ptrDouble

cout << intVal<<endl;	e) //this line prints	[ ]
cout << doubleVal<<endl;	f) //this line prints	[ ]
cout <<& intVal<<endl;	g) //this line prints	[ ]
cout << &doubleVal<<endl;	h) //this line prints	[ ]
cout << * ptrDouble <<endl;	i) //this line prints	[ ]
cout << *ptrInt <<endl;	j) //this line prints	[ ]
cout<<sizeof(*ptrInt)<<endl;	k) //this line prints	[ ]
cout<<sizeof(ptrDouble)<<endl;	l) //this line prints	[ ]

(12 Marks)

4) Rewrite the following Code fragment using Pointer Arithmetic

```
int main()
{

    int values[] = {5,8,2,9,10};
    int sum = 0;

        for(int i = 0;i <5,i++)
        {
            sum = sum + values[i];
        }

    cout < < "The Total is "<<sum<<endl;


return 0;
}
```

(6 Marks)

End of Paper