



Sri Lanka Institute of Information Technology

Bachelor of Science in Information Technology

Mid Term Examination

Year 1, Semester 1, 2012

Monday, 09th April 2012

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

Duration: 1 Hour

(Time 09.00 a.m. – 10.00 a.m.)

Instructions to Candidates

- This paper contains **TWO (2)** Questions on **THREE (3)** Pages.
- Answer **ALL** questions on the **WORKBOOK** provided.
- The paper is worth 30 marks.

QUESTION ONE (Total: 16 marks): Language Basics.

- (a) What is a variable? [1 mark]
- (b) Write C expression statements to evaluate the following equations. Assume that variables are declared. [2 marks]
- $y = 2mx^3 + 0.5c$
 - $\text{answer} = \frac{2m \times m^2}{(m+5) \div m} g$
- (c) Evaluate each of the following expressions and list the final value of variable **x**. [3 marks]
- $x = 7 + 3 * 6 / 2 - 6 \% 3 ;$
 - $x = 2 \% 8 + 2 * (4 / 5) / 2 ;$
 - $x = (3 * 9 * (3 + (9 / 2 * 3 + 6 / (2 \% 4)))) ;$
- (d) Identify and correct the errors in each of the following statements. [4 marks]
- `firstnumber + secondnumber = total;`
 - `answer=x2 + 4(z-3);`
 - ```
if(x = 1);
 printf("Equal to 1");
 z++;
else
 printf("Not equal to 1");
```
  - ```
x=1;
while(x>1)
    total= total + x;
x++;
```
- (e) Evaluate each of the following expressions and list the final values of the variables after each statement. (The expressions are to be evaluated independent of one another) [4 marks]

`int i = 13, j = 3, k = 14, m, n ;`

- `m = ++k / j++ + --i / 3 * 3 ;`
- `n = i-- * (++j + i % --k) ;`
- `m = k % (i + j) % 10 % --j;`
- `n = i % 4 % --j * 2 + (3 % --i) + 2 / 3;`

- (f) Rewrite each of the following statements without using logical operators. **You should use nested if statements to rewrite.** [2 marks]

1.

```
if (option < 0 || (option > 5 || option == 5) )  
    printf("Out of range");  
else  
    printf("Value is within the range");
```
2.

```
if ((M1 < 60 && M2 > 60) || (M1 > 60 && T > 200))  
    y = 1;  
else  
    y = 0;
```

QUESTION TWO (Total: 14 marks): Control statements and Functions

- (a) Write a C program to accept 3 digit integer and then the program counts and prints all the combinations. [4 marks]

Example:

Enter a value : 221

Combination 1: 0 0 0

Combination 2: 0 0 1

Combination 3: 0 1 0

Combination 4: 0 1 1

Combination 5: 0 2 0

Combination 6: 0 2 1

Combination 7: 1 0 0

Combination 8: 1 0 1

Combination 9: 1 1 0

Combination 10: 1 1 1

Combination 11: 1 2 0

Combination 12: 1 2 1

Combination 13: 2 0 0

Combination 14: 2 0 1

Combination 15: 2 1 0

Combination 16: 2 1 1

Combination 17: 2 2 0

Combination 18: 2 2 1

Total Combinations: 18

(b) Write only the loop statements to print the following sequences: [4 marks]

1. @@ @@@@ @@@@@@ @@@@@@@@

2. 10000 1000 100 10 1

3. 5 4 3 2 1

4. *****

**

*

(c) Explain what formal and actual arguments are using an example. [2 marks]

(d) 1. Write a function that reads numbers from user till the user enters -999 and prints 'yes' if the numbers read are in increasing order. (Hint: latest number read is larger than the one immediately before) [4 marks]

2. Write the main method to call the function.

Example:

Enter Numbers : 4

5

6

7

13

-999

Output : Yes

---- End of the Paper ----