Sri Lanka Institute of Information Technology

B.Sc. Degree
in
Information Technology

Mid-Term Examination
Year 1, Semester 1 (2015)

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

Duration: 1 Hour

Instructions to Candidates:

- This is a closed book examination.
- This paper contains 2 questions on 2 pages without the cover page.
- Answer all questions on the WORKBOOK provided.
- Read all questions before answering.
- The total marks obtainable for this examination is 30.

QUESTION ONE (Total: 18 marks)

(a) What is the importance of having the main method in a C programme? (1 mark)

(b) List operators and operands in the following expressions.

1. no++;
2. no1=a%b;
3. flag=!(age>20);

(3 marks)

(c) Evaluate each of the following expressions and list the final value of variable **x**.

1. x = 9 % 3 - 4 * 3 /(2 – 6) % 3 ;
2. x = 2 / 8 + 2 * 8 / 5 % 2 * 2 ;
3. x = (5 % 2 * 9 + (3 + ((9 – 4) / 2 * 3 + 6 / (8 % 3))));
4. x= 3 % 5 * 3 % 3 + 2;

(4 marks)

(d) Determine the output of part **a** and **b** when;

1. x is **5** and y is **4**
2. x is **11** and y is **9**

a.
```
if (x < 3 )
if (y !=5 ){
printf("*****\n");
printf("-------\n");
 }
else
printf("######\n");
printf("$$$$$\n");
```

b.
```
if ( x<10 ) {
 if( y > 4 )
 printf("*****\n");
 printf("-------\n");
 }
 else {
printf("######\n");
printf("$$$$$\n");
}
```

(4 marks)

(e) State whether the following statements are *true* or *false*.

1. In C language lowercase letters are significant.
2. main () is where the program begins its execution.
3. Logical errors will be detected by the compiler
4. Int is a keyword.

(2 marks)

(f) Rewrite each of the following statements without using logical operators. **You should use nested if statements to rewrite.** [4 marks]

1.
```
if ((rate = = 0)&&  (no1 >5 || no2 <10) )
    printf("done");
else
    printf("Enter again");
```

2.
```
if ((r1< 60)  || (M2 < 60  && T1 > 200) || (M2 < 60  && T2 < 200))
    y = 1;
else
    y = 0;
```

QUESTION TWO (Total: 12 marks)

(a) Write a C program to accept a 5 digit integer, count number of digit "0" it has and print the total number of "0"digits. The program also prints "**None**", when there are no "0"digits.

Example 1:
Enter a value : 10506
Number of "0" digits : 2

Example 2:
Enter a value : 87653
Number of "0" digits : None

(4 marks)

(b) Write only the loop statements to print the following sequences:

1. 1 3 5 7 9

2. 1 4 9 16 25 36

3. 1 3 6 10 15 21

4. 888 777 666 555 444 333

(4 marks)

(c) Write a C program that accepts two integers as number 1 and number 2 from the user and then prints common factors between them.
Hint: **Factors that two numbers can be divisible and have in common are called the common factors of those numbers.**

Example 1:
Enter number 1: 10
Enter number 2: 15
Common Factors: 1, 2, 5

(4 marks)

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