Sri Lanka Institute of Information Technology

B.Sc. Degree
in
Information Technology

Mid-Term Examination
Year 1, Semester 1 (2014)

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

Duration: 1 Hour

Instruction to Candidates:

- This paper contains 3 questions on 3 pages without the cover page.
- Answer all questions on the WORKBOOK provided.
- Read all questions before start answering.
- The total marks obtainable for this examination is 30.
- This is a closed book examination.

QUESTION ONE [18 marks]

(a) What is an identifier? [1 mark]

(b) Write C expression statements to evaluate the following equations. Assume that variables are declared. [3 marks]

1. $y = 4mx^3 + ¼\ c$
2. answer = $\frac{2m \ X \ m^4}{(0.5m+5) \ X \ m}\ g$

(c) The loop shown below has been written by an inexperienced C programmer. The behavior of the loop is not correctly represented by the formatting. What is the output of the loop as it is written? [2 marks]

```
int n = 12;
while (n > 0)
  n /= 2;
  cout << n * n << endl;
```

(d) Identify and correct the errors in each of the following statements. [4 marks]

1. printf("%d",&value)

2. answer=2x + 4(z-3);

3. if(number=>largest);
   largest = = number

4. x=1;
   while(x<1);
   total= total + x;
   x++;

(e) Evaluate each of the following C expressions and list the final value of variable **x**. [4 marks]

1. x = 7 % 4 * 6 / (12 – 6) % 3 ;

2. x = 6 % 8 / (3 * 2) ;

3. x = (7 % 4 * 9 / (3 + (8 - 4 / 2 * 3 % 6 + (2 + 4))));

4. x= 12 / 4 – 8 % 3 / 4

(f) Rewrite each of the following statements using logical operators. **You should use only if else statement to rewrite.** [4 marks]

1.
```
if (option < 0)
{
    printf("Out of range");
}
else {
    if (option >5 ) {
        if(option <10) {
          printf("Out of range");
    }
    }
        else
        printf("Value is within the range");
    }
```

2.
```
if (M1< 60 ){
  if(M2 >60 )
   y = 1;
  else
   if(T > 200)
    y = 1;
}
else {
   if(T > 200)
    y = 1;
   else
    y = 0;
}
```

QUESTION TWO **[12 marks]**

(a) Write a C program that accepts temperature in degrees Fahrenheit as an input from User and to produce the output in temperature in degrees Celsius using the following equation. You should print, "It is too cold" if the Celsius value is below 0. [4 marks]

Equation :
Tf = (9/5)*Tc+32; Tc = temperature in degrees Celsius, Tf = temperature in degrees Fahrenheit

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

1. **1 4 7 10 13**
2. **81 27 9 3 1**
3. **001 010 011 100 101 110 111**
4. **1 3 6 10 15**

(c) Write the main method of a C program that accepts a positive integer from the User and then counts and prints out all the positive divisors of that integer in decreasing order. [4 marks]

Example:
Please enter a positive integer: 36
36
18
12
9
6
4
3
2
1
Number of divisors>>9

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