

**CS101**

**Introduction to Computing**

Monday, November 10, 2014

**Course Instructor**

Dr. Sibte ul Hussain, Dr. Hassan Mujtaba,  
Ms. Uzma Maroof

Serial No:

**Sessional II**

**Total Time: 1 Hour**

**Total Marks: 75**

\_\_\_\_\_  
Signature of Invigilator

\_\_\_\_\_  
Student Name

\_\_\_\_\_  
Roll No

\_\_\_\_\_  
Section

\_\_\_\_\_  
Signature

**DO NOT OPEN THE QUESTION BOOK OR START UNTIL INSTRUCTED.**

**Instructions:**

1. Attempt on question paper. Attempt all of them. Read the question carefully, understand the question, and then attempt it.
2. Please read the complete paper before attempting any question and manage your time intelligently.
3. No additional sheet will be provided for rough work. Use the back of the last page for rough work.
4. If you need more space write on the back side of the paper and clearly mark question and part number etc.
5. After asked to commence the exam, please verify that you have eight (8) different printed pages including this title page. There are total of 4 questions.
6. Use permanent ink pens only. Any part done using soft pencil will not be marked and cannot be claimed for rechecking.
7. Use **proper indentation** while writing code and make sure that your code is legible. Failing to do so can cost you marks.

	Q-1	Q-2	Q-3	Q-4	<b>Total</b>
<b>Marks Obtained</b>					
<b>Total Marks</b>	30	20	15	10	<b>75</b>

**Vetted By:** \_\_\_\_\_ **Vetter Signature:** \_\_\_\_\_

**Q. No. 8.1:** Please read the questions carefully and do look for both syntax as well semantics errors.

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(a) What is the output of the following C++ code?

<pre>int main() {     float j = 9;     float k=10;     float l= j/k *(2/4)+ 30%4;     int m=l + 32.0/3.0+6;     int c, d=0;     d= c + d+1 ;     cout &lt;&lt; m &lt;&lt;" "&lt;&lt;l&lt;&lt;endl;     cout &lt;&lt; c &lt;&lt;" "&lt;&lt;d&lt;&lt;endl; }</pre>	Output:
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(b) What is the output of the following python code?

<pre>def funA(str):     print ' Hello ' + str,     return str     print 'Students '  def funB(a):     print 'Hello',     c=funA(a)     return c + ' Students '     print c  a='xyz' str='ITC' z=funB(str) print z</pre>	Output:
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(c) What is the output of the following code?

<pre>int main() {     int x=-20;     while(x)     {         int j=0;         while(++j &lt; 4);         cout&lt;&lt;" Hello "&lt;&lt;endl;         if(j==4);         else             cout&lt;&lt;" OK ";         x+=10;     } }</pre>	Output:
--	---------

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(d) What is the output of the following code?

<pre>int i=-5,j=0; for(i; i ; ) {     j=0;     for (j; j &lt; 5; ++j);         cout&lt;&lt; " * ";     cout&lt;&lt;endl;     i++; }</pre>	Output:
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(e) What is the output of the following code?

<pre>int i=-5,j=0; for(i; i ; ) {     j=0;     for (j=0; j &lt; 5; ++j)         cout&lt;&lt; " * ";     cout&lt;&lt;endl;     i++; }</pre>	Output:
--	---------

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(f) What is the output of the following code?

<pre>int i=1,j=1,k=1; while (i &lt;= 2) {     j=1;     while (j &lt;= 3) {         k=2;         while(k &lt;= 4)         {             cout&lt;&lt;(" * ");             k++;         }         cout&lt;&lt;(" ! ");         j++;     }     cout&lt;&lt;endl;     i++; }</pre>	Output:
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## Q. No. 2

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- a) Write a Python function named `minGap` that accepts an integer list as a parameter and returns the minimum 'gap' between adjacent values in the list. The gap between two adjacent values in a list is defined as the second value minus the first value.

For example, suppose a variable called `train` is a list of integers that stores the following sequence of values:

```
train = [1, 3, 6, 7, 12]
```

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The first gap is 2 ( $3 - 1$ ), the second gap is 3 ( $6 - 3$ ), the third gap is 1 ( $7 - 6$ ) and the fourth gap is 5 ( $12 - 7$ ). Thus, the call of `minGap(train)` should return 1 because that is the smallest gap in the array. If you are passed a list with fewer than 2 elements, you should return -1.

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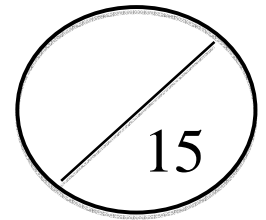
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- b) Write a program (C++ or Python) that displays the following output on screen:

```
+-----+
| \   / |
|  \ /  |
|   X   |
|  / \  |
| /   \ |
|-----|
```



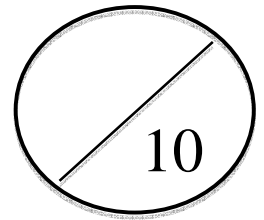
## Q. No. 3



Write a C++ program that accepts two integer inputs rows and cols and outputs a comma separated grid of numbers where the first input (rows) represents the number of rows of the grid and the second input (cols) represents the number of columns. The numbers count up from 1 to (rows X cols).

Input:	Rows=3, Cols=6	Rows=5, Cols=3	Rows=4, Cols=1	Rows=1, Cols=3
<b>Output</b>	1, 4, 7, 10, 13, 16 2, 5, 8, 11, 14, 17 3, 6, 9, 12, 15, 18	1, 6, 11 2, 7, 12 3, 8, 13 4, 9, 14 5, 10, 15	1 2 3 4	1, 2, 3

## Q. No. 4



Suppose you are given two strings (they may be empty), s1 and s2. You would like to "lace" these strings together, by successively alternating elements of each string (starting with the first character of s1). If one string is longer than the other, then the remaining elements of the longer string should simply be added at the end of the new string. For example, if we lace 'abcd' and 'efghi', we would get the new string: 'aebfcgdhi'

```
def laceStrings(s1, s2):  
    """  
    s1 and s2 are strings.  
  
    Returns a new str with elements of s1 and s2 interlaced,  
    beginning with s1. If strings are not of same length,  
    then the extra elements should appear at the end.  
    Draw a Smiley on the top of front page to gain two bonus  
    marks  
  
    """  
    # Your Code Here
```

