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| Instructor |  | Due Date |  |

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| **Part** | **1** | **2** | **3** | **4** | **Total** |
| *Maximum Points* | **25** points | **25** points | **25** points | **25** points | **100**G101010 pointsG |
| ***Your Score*** |  |  |  |  |  |

**Textbook Reading Assignment**

Thoroughly read Chapter(s) on Looping Control statements in your **Python** textbook.

**Part 1 Glossary Terms**

Define, in detail, each of these glossary terms from the realm of computer programming logic and design and computer topics, in general. If applicable, use examples to support your definitions. Consult your notes or course textbook(s) as references or the Internet by visiting Web sites such as:

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| http://www.askjeeves.com | http://www.webopedia.com | http://www.bing.com |

**(a) for() Loop**

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| --- |
| Native Python function for looping over iterables. Syntax: `for element in iterable:` |

**(b) Looping Structures**

|  |
| --- |
| For…in, While, and nested loops are three kinds of looping structures |

**(c) Pre - test Loop**

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| --- |
| On first loop, determine if function needs to execute body of loop at all by checking for test condition |

**(d) Post - test Loop**

|  |
| --- |
| After executing body of loop, check if loop needs to continue by checking test condition |

**(e) while() Loop**

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| --- |
| A while loop has a test condition that, while True, will continue to execute the body of the loop. |

**Part 2 Textbook Exercises - Looping Techniques**

For each of the following, enter T if the statement is TRUE otherwise enter F for FALSE.

**FALSE** **(1)** A while loop is a form of a post - test loop whereas a for loop is a form of a pre - test loop.

**TRUE** **(2)** The relational expression in a while loop is tested at the beginning of each execution of the loop.

**TRUE** **(3)** An infinite while loop is one in which the while condition is always true.

**TRUE** **(4)** A while loop is a form of a pre - test loop whereas the for loop is a form of a post - test loop.

**TRUE (5)** A nested loop is a loop, which contains, within itself, at least one other loop.

**Part 3 Textbook Exercises - Review Topics in Computer Programming**

**(1) ( Relational and Logical Operators )**

Relational and Logical operators are often included in the looping conditions of repetition code blocks.

The following table lists several variables from a Java program and the value of each variable at the point where a condition is about to be evaluated.

|  |  |  |
| --- | --- | --- |
| **Variable Name** | **Variable Type** | **Contents** |
| item\_number | String | C22 |
| quantity | Numeric | 65 |
| price | Numeric | 4.75 |
| reorder\_point | Numeric | 20 |
| discount | String | N |

What is the value for each of the following conditions?   
 Enter T for TRUE or F for FALSE.

**FALSE** (a) (quantity > = 100) and (price = = 4.75)

**TRUE** (b) (quantity < 100) or (price = = 4.75)

**TRUE**  (c) (price > = 4.75) or (quantity = = 50 and discount = = 'N')

**FALSE** (d) ((quantity = = 50) and (discount = = 'N')) and (price == 1.0)

**TRUE** (e) quantity = = 65 or ((discount = = 'Y') and (price = = 4.75))

**FALSE** (f) (reorder\_point == 20) and (quantity == 50) or (price < 0.5)

**(2) ( Looping Techniques )**

Predict the output of the following program segment.

**i = 0**

**print("i = ", end = " ")**

**while (i <= 5) :**

**print(i, "\t", end = " ")**

**i = i + 1**

(a)i = 0 (b)i = 0 1 2 3 4 5 6

(c)i = 1 2 3 4 5 6 **(d)** i = 0 1 2 3 4 5

**(3) ( Looping Techniques )**

Predict the output of the following program segment.

**i = 0**

**print("i = ", end = " ")**

**while (i < 5) :**

**print(i, "\t", end = " ")**

**i += 1**

**(a)** i = 0 1 2 3 4 (b)i = 0 1 2 3 4 5 6

(c)i = 1 2 3 4 5 6 (d)i = 1 2 3 4 5

**(4) ( Looping Techniques )**

Predict the output of the following program segment.

**i = 5**

**print("i = ", end = " ")**

**while (i <= 5) :**

**i = i + 1**

**print(i, "\t", end = " ")**

**(a)** i = 6 (b)i = 1 2 3 4 5 6

(c)i = 1 2 3 4 5 (d)i = 5

**(5) ( Looping Techniques )**

Predict the output of the following program segment.

**for i in range (1, 37, 9) :**

**print (i, "\t", end = " ")**

(a)1 11 21 28 (b)1 10 21 28

(c)1 11 18 27 **(d)** 1 10 19 28

**Part 4 Textbook Exercises - Review Topics in Computer Programming**

**(1) ( Looping Techniques: while() Loops )**

Write a program segment that uses a single while() loop which executes its loop body five times, each time displaying a random digit from this set of values.

{ 1 , 2 , 3 , 4 , 5 , 6 }

|  |
| --- |
| set\_of\_values = {1, 2, 3, 4, 5, 6}  count = 5  *while* count > 0:  print(set\_of\_values.pop())  count -= 1 |

**(2) ( Looping Techniques: for() Loops )**

Write a looping segment that uses a single for() loop to display the following message, according to these loop control settings.

Chicago

loop control variable: counter

control variable ( initial value ) : 0

looping condition / sentinel value: counter <= 3

control variable step increment: 2

|  |
| --- |
| *for* i *in* range(0, 2, 2):  print("Chicago") |

**(3) ( Nested Looping Techniques )**

Predict the output of the following program segment.

**i = 20; m = 10; n = 15; p = 30**

**print("i = ", end = " ")**

**for i in range(m, n, p) :**

**m = i;**

**n = m + p;**

**m = n + 3 \* p;**

**print("\t", m, "\t", n, "\t", end = " ")**

|  |
| --- |
| i = 130 40 % |