## University of Cape Town ~~ Department of Computer Science Computer Science 1015F ~~ 2018 Class Test 2

**Marks** : 35

Time: 40 minutes

## **Instructions:**

1. Answer all questions.

2. Write your answers in PEN.

3. All questions refer to version 3 of the Python programming language.

## Question 1 [8]

not?

Examine the Q1.py module listed below and answer the following questions.

```
#Q1.py
     print("--Welcome to the sandwich constructor--")
     print("(Other than bread) tell us what you want")
      ing = input("Another ingredient? Y/y/N/n")
     while ing== 'Y' or 'y' or 'N' or 'n':
           ing = input("What ingredient do you want?")
           ing = "{:$^11}".format(ing)
           print("Okay, we'll add",ing)
           #ing = input("Another ingredient? Y/y/N/n")
(a) Does the last line being commented out make the while loop an infinite loop? Why or why
   No [1] is infinite whether it's commented out or not[1]
  because strings (e.g.) "y" always evaluate to True [1] thus
  the condition or <string> will always be True [1]
                                                                          [4]
(b) What exactly would line 6, ing = "\{:\$^11\}".format(ing) do if ing =
"cheese"?
   ing = "$$cheese$$$" [2] if perfect, else [1] if have at least 1 '$' before and after 'cheese'
                                                                           [2]
(c) What are the purposes of the break , continue statements?
Break exits immediately from a loop [1]
Continue immediately starts the next iteration of the loop [1]
                                                                          [2]
```

## Question 2 [17]

(a) Write a function, ingredient\_rev\_up, that reverses the (approximately) first half of an ingredient string character by character using the length of the ingredient string, and converts the 2<sup>nd</sup> half into uppercase and then returns the reversed ingredient

```
def ingredient_reverse(ing):
     revup = ""
     for i in range(len(ing)//2,-1,-1):
        revup += ing[i]
      for i in range (len(ing)//2,len(ing))
        revup += ing[i].upper()
     return rev
   [1] for def ingredient_reverse(ing) [-1 if no argument]
   [1] for use of len//2 (note integer division)
   [5] for range statements [[1] each for start, stop and step values]
   [1] for rev += ing[i]
   [1] for rev += ing[i].upper()
   [-1] for any indentation errors
                                                                                        [11]
(b) What is the missing line to complete this program so it is not an infinite loop?
j=10
while j != 5:
 j-=1
 print (j)
 if j==5:
   # MISSING LINE
 j-=1
                                                                                       [2]
       Break[2]
       Or j=6[1 mark]
(c) What is the output of the following program?
       def Funky(x,y,z):
              if x>y:
                 if y>z:
                    print(x y z)
                 else:
                    result=c
              if x==y or y==z or z==x:
                 print("All values are equal!")
       Funky(7,5,1)
```

	Funky(5,5,9)	[4]
<mark>751</mark> All	[2] values are equal! [2]	
Que	stion 3 [10]	
(a) W	Primary storage: data not lost when PC switched off [1] e.g. RAM [1] Secondary storage: data accessible only when PC on [1] e.g. HDD [1]	[4] —
(hum H	Why are programming languages (e.g. Python) more suitable for writing programs than an languages such as English?  [uman languages ambiguous and imprecise [1] rogramming languages precise syntax and semantics[1]	natural
langu C C O Ir ir	Jame <i>two</i> ways to convert a program from a high level language (e.g. Python) to machinage. Give the differences (if any) between these two ways.  Compilation and interpretation [2]  Compilation: a program that translates a program one-shot.  Only reads the source code once. [1]  Interpretation: a program that analyses and executes  Instruction by instruction as necessary. Need it every time  The program is to be run [1].	[4]
