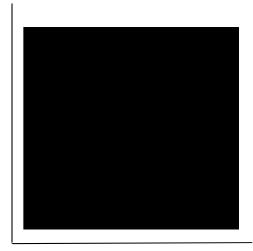
Please fill in your Student Number and Name.			
Student Number	:		



# University of Cape Town ~ Department of Computer Science Computer Science 1018F ~ 2008

Test 3

Question	Max	Mark	Internal	External
1	15			
2	10			
3	6			
TOTAL	30			

Marks: 30

Time : 40 minutes

#### **Instructions:**

- a) Answer all questions.
- b) Write your answers in the space provided.
- c) Show all calculations where applicable.

## Question 1 [15]

a)

b)

In astronomical reckoning, the seasons begin at the solstices and equinoxes, which will here assume occur uniformly on the 21st of the month in question. Examine the Python unit test code below:

import	test for Southern Hemisphere date-Season conversions"' Seasons unittest	1 11
	SuccessCheck(unittest.TestCase):  bwnValues = (( 21,3, 'Autumn'),  (21,7, 'Winter'),  (21,9, 'Spring'),  (21,12, 'Summer')	
:	<pre>f testKnown(self):   for day,month,season in self.knownValues: result = Seasons.Season(day,month) self.assertEqual(result, season)</pre>	
ifna unit	ame == "main": test.main()	
Unit testin	ng is an example of black box testing. What is <b>black box</b> testing?	[2]
	cessCheck class does not take the principles of equivalence testing and boundary nto account.	7
i. 	Why is it a good idea to consider equivalence classes when testing a program?	[3]
ii.	Explain how you would alter knownValues so that represents an appropriate so fequivalence classes and boundary values.	et [3]
		_

for sa		ypically divided into tests for success, tests for failure and "other" tests, such as	tests
	i.	What is a test for failure?	[
	ii.	There are no checks for failure in this unit test. Give an example of a test for that should be added to the testing suite.	failu
	iii.	How are assertions used in tests for failure?	
	iv.	What is a <i>sanity check</i> ?	 
	V.	Should you add a sanity check to this testing suite? Explain your answer.	

## Question 2 [10]

Complete the DateToSeason method below. This method accepts a string consisting of a date and returns the season, using the Seasons.Season method.

e.g. DateToSeason("03/9/04") will return 'Winter'.

The date may be in one of the following formats: dd/mm/yyy or dd/mm/yy. The separators '.', '\', ' and '-' are also allowed within the date string, but separator may not be mixed within a single date. Single figure entries may have the form x or 0x, e.g. 3/4/5 or 03/04/05.

<pre>def DateToSeason(string):</pre>	

### Question 3 [6]

Examine the python code below:

```
startText = """In summer, when the days are long,
Perhaps you'll understand the song:
In autumn, when the leaves are brown,
Take pen and ink, and write it down."""
"""
repStr = '*'
print re.sub(regExp, repStr, startText, re.MULTILINE)
```

In each question that follows, choose the value for regExp that will print the displayed text.

```
In summer, when the days are 1*g,
Perhaps you'll understand the s*g:
In autumn, when the leaves are br*n,
Take pen and ink, and write it d*n.
      r'o.'
 A.
 B.
      r'o[wnk]'
 C.
      r'o+'
 D.
      A or B
In *, when the days are long,
Perhaps you'll * the song:
In *, when the * are brown,
Take pen and ink, and write it down.
 A. r'b[a-z]{6,}'
 B. r'\b[alus][a-z]*'
 C. r'[a-z]*u[a-z]*'
 D. B or C
In su*er, when the days are long,
Perhaps you'* u*d the song:
In a*mn, when the l*s are brown,
Take pen and ink, and write it down.
      r'(mm|11|uu)'
 A.
      r'[elmnu][a-z]*[elmnu]'
 В.
 C.
      r'([a-z]).*\1'
 D.
      r'([a-z])[a-z]*\1'
```