University of Cape Town

Department of Computer Science

Computer Science CSC1010H

Class Test 1

Thursday, 8 May 2014

Marks: 35

Time: 40 minutes

- Approximate marks per question are shown in brackets
- The use of calculators is permitted

Surname Initials

NAME:

STUDENT NO: **COURSE CODE:** CSC

This paper consists of 6 questions and 5 pages (including this cover page).

Mark Allocation							
Question	**Marks**	**Internal**	**External**	**Question**	**Marks**	**Internal**	**External**
1	9			6	5		
2	6						
3	3						
4	6						
5	6						
	Total				**Total**		
					Grand Total		
					Final Mark		
Internal Examiner:				**External Examiner:**			

Question 1. **[9 marks]**

For each of the following, say whether the statement is True or False.

a) Division has higher precedence than modulus when evaluating expressions in Python.

false [1]

b) Square brackets [] are used to enclose function parameters.

false [1]

c) An if statement always needs a corresponding else statement.

false [1]

Answer the following questions:

d) The world wide web is based on the concept of hypertext. Explain briefly what that concept of hypertext means.

Pages contain links to other pages [1]

e) What is the term used when referring to the grammatical rules of a program?

syntax [1]

f) What is the data type of the result when an arithmetic operation is performed on an int and a float?

float [1]

g) Which Python Turtle function allows the turtle to move without drawing a line?

penup
[1]

Insert the missing word:

h) The str Python data type only stores text based data. [1]

i) When solving a computing related problem it is always better to first write the planned series of steps known as an algorithm and then write the computer program.

Question 2. **[6 marks]**

What is the value of each of these expressions if evaluated in Python:

a) `print(2 + 3 * 5 % 4)` 5 [1]

b) `print(2 * 3 ** 2)` _____18_____ [1]

c)
```
import math
print(math.ceil(2.5*2))
```
_____5_____ [1]

d)
```
b = 12
b //= 5
print(b)
```
_____2_____ [1]

e)
```
s = 'a1b2c3d4e5'
print(s[4:8])
```
_____c3d4_____ [1]

f)
```
a, b, c = 2, 4, 6
print(not a < c or b > c)
```
_____false_____ [1]

Question 3. **[3 marks]**

Indicate which of the following identifier names are *valid* or *invalid*:

a) name&surname _____invalid_____

b) cell_number _____valid_____

c) 2ndvalue _____invalid_____ [3]

Question 4. **[6 marks]**

Find three errors in the Python program below which would be generated by the Python compiler, indicating which line number it is on, as shown on the left. Also indicate what the error is, and explain how you would fix it:

```
1.    import math
2.
3.    def main()
4.        num = float(input('Enter num:'))
5.        if 0 <= num <= 100:
6.            square = math.pow(num,2)
7.            print('square is'; square)
8.        elif:
9.            print('Error num not in range')
10.
11.   main()
```

On line 3 definition of main function doesn't end with colon #1 insert colon #1

On line 7 print parameters are separated by semi-colon ; #1 insert comma #1

On line 8 elif is incorrect #1 change to else #1

[6]

Question 5. **[6 marks]**

Consider this definition of a Python main() function and answer the questions below:

```
1. def main():
2.     a = int(input('enter a:'))
3.     b = input('enter b:')
4.     c = str(a + 2) + b
5.     print(c)
6.
7. main()
```

a) What datatype is a? int [1]

b) What datatype is b? str or string [1]

c) What datatype is c? str or string [1]

d) Four different types of operations occur on line 4. Name all four operation types.

Assignment, casting, addition, concatenation ½ for each

[2]

e) What is the output of this program if the user enters 3 and 5?

55 [1]

Question 6. **[5 marks]**

Write a complete Python program which calculates the profit on an item to be sold, and does the following:
- prompts the user and reads the cost price,
- prompts the user and reads the sales price,
- calculates the profit,
- and prints out the answer with an appropriate message.

Note: Ensure that your program has a main() function and is able to run.

```
def main(): # 1/2
    cost_price = float(input('enter cost price:')) #1 float or int
    sales_price = float(input('enter sales price:')) #1 float or int
    profit = sales_price - cost_price #1
    print('Profit is', profit) #1

main()# 1/2
```

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[5]