University of Cape Town ~~ Department of Computer Science

Computer Science 1015F ~~ 2017

Class Test 1

Marks : 32

Time : 45 minutes

Instructions:

a) Answer all questions.

b) Write your answers in PEN by shading in the appropriate block on the answer sheet.

c) Each question is worth 2 marks.

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

Question A - Basic Syntax

1. Which is a valid Python identifier?

a. "variable"

b. 1024

c. 2_more_steps

d. myMoney

e. _extra_money$

D

2. What is the value of x at after executing the following expressions?

```
x = 1
x += (3 % 4 + 4 % 3) ** 2 * 2
```

a. 32

b. 33

c. 19

d. 257

e. 82

B

3. What is the output of the following statement?

```
print("21\n",2,"1\n\"3",12,"1",end="\\""", sep="\"")
```

a. 21
"2"1
"3"12"1\"

b. 21
21
"3121\"

c. 21
"21
"312"1\"

d. 21n"2""1n"3"12"1"\\"

e. 21n21n"3121\"

A

3

Question B - Selection

4. What is the output of the following program?
```
a = 12
if a % 3 == 0:
    print (a % 4)
else:
    print ("False")
```
a. False

b. "False"

c. 4

d. 3

e. 0

E

5. The following program has a logic error. How will you fix it so it prints out the correct assessment of the temperature?
```
if temperature <= 0:
    print ("Very very cold")
elif temperature > 20:
    print ("Warm")
if temperature > 10:
    print ("Cool")
else:
    print ("Cold")
```

a. change "temperature < 30" to "temperature > 30"

b. change the "else" to "elif temperature<10:"

c. change the second "if" to "elif"

d. change the "elif" to "if"

e. use parentheses to ensure correct precedence in expressions

C

6. What is the value of the following boolean expression?

4

```
        4<=3 or not 1<=10 and 5>4 or True and not False
```

a. False

b. 0

c. True

d. 1

e. (Error: invalid expression)

C

7. The following program is supposed to check if the temperature is too hot or too cold to go play outside. Which statement IS NOT an error in the program?

```
if (temperature > 40 and temperature < 0 or not temperature <
40 (and temperature > 20))):
    print ("Weather is not nice outside!")
```

a. parentheses/brackets are in the wrong places

b. comparison operators are incorrect

c. parentheses/brackets are missing

d. boolean operators (and/or) are incorrect

e. illegal identifier

D

8. What values for `user` and `password` would give the specified output?

```python
real_password = "password123"
real_name = "brian"
if password==real_password:
    if name!=real_name:
        print ("one", end="!\n")
    else:
        print ("two", end="!\n")
else:
    print ("three", end="!\n")
```

a. Input: user='brian' password='password' | Output: one!

b. Input: user='admin' password='password123' | Output: two!

c. Input: user='brian' password='password123' | Output: one!

d. Input: user='admin' password='password' | Output: two!

e. Input: user='brian' password='password123' | Output: three!

B

Question C - Iteration

9. What values are generated by this range function?
```
range (9, 1, -3)
```
a. 9, 8, 7, 6, 5, 4, 3, 2

b. 9, 7, 5, 3, 1, -2

c. 9, 7, 5, 3

d. 9, 6, 3

e. 9, 6, 3, 0

D

10. What does the following program compute?
```
i=0
j=1
k=9
while j<=k:
    if j % 2 != 0:
        i += 1
    j += 1
```

a. count of even numbers from j to k

b. count of odd numbers from j to k

c. sum of numbers from j to k

d. list of numbers from i to k

e. list of even numbers from i to j

B

11. What is the output of the following program?

```
for a in range (2):
    for b in range (5):
        if b % 3 == 0:
            print ("*", end="")
        else:
            print (" ", end="")
    print ()
```

a.

* *

* *

b.

**

**

c.

* * *

* * *

d.

**

**

e.

* *

* *

* *

* *

* *

A

12. What does the following program output?

```
i=0
while i<5:
    i += 1
    print(i**2,end='')
```

a. 2516941

b. 1491625

c. 014916

d. 169410

e. 3625169410

B

13. What python statement causes the loop to immediately execute the next iteration?

a. continue

b. pass

c. else

d. break

e. terminate

A

Question D - Strings

14. What is the output of the following code?
```
a = "Space Bob"
print ((a[0]+a[6]+a[5])*4)
```
a. Space Bob Space Bob Space Bob Space Bob

b. SBSBSBSB

c. S S S S

d. SB SB SB SB

e. SboSBoSBoSBo

D

15. The following program implements a simple cryptographic algorithm. What is the output?
```
a = "secret"
c = ""
j = ord ("a")
k = ord ("k") - ord ("a")
for i in range (len (a)):
    c += chr (((ord (a[i]) + k) % 26) + j)
print (c)
```

a. vhfuhw

b. ufgtgv

c. ufggvv

d. xrgaru

e. vfhtfy

A

16. What is the value of the following string expression?
```
(("Space"+" "*1+"Bob"+"!"*3)*4)[-1:-7:-1]
```
a. "Space Bob!!!Space Bob!!!Space Bob!!!Space Bob!!!"

b. "Space Bob!!!*4"

c. "!!!boB ecapS"

d. "!!!boB"

e. "Bob!!!"

D