Semester Examination - Winter 2017
University of South Bohemia

Program: Bioinformatics
Course Title: Python Basics
Course Code: UAI/735I
Date of Exam: December 18, 2017

Time Duration: 75 minutes
Total Marks: 36
Student's Name: _____
Signature: _____

1) What is output of the following code snippet? [2 marks]

```
x = ['a', 'b', 'c', 'd', 'e', 'f']
for i in x:
   if (x.index(i)%2 == 0):
      x.pop(x.index(i))
print(x)
```

Output:

2) What is output of the following code snippet? [1 mark]

```
dictionary = [1:'a', 2:'b', 3:'c']
key = 3
if (dictionary[key] == 'c'):
   print("c is the value of the reference key")
```

Output:

3) What is output of the following code snippet? [1 mark]

```
course = "Python Basics"
j = 0
while (j < 3):
   print (course[j])
j = j+1
```

Output:

4) What is output of the following code snippet? [1 mark]

dictionary = {1:“abc”, 2:“bcd”, 3:“cde”, 4:“def”}
print(list(dictionary))

Output:

5) What is the output in each of the following cases? [8 marks]

- m = input(“Enter number: ”)
  print(type(m))

  Upon execution of the above commands the user inputs 5. Complete the console window output.

Output:
Enter number: 5 _____

- m = (4, 5, “abc”, 0xaa)
  print(type(m))

Output:

- m = [4, 5, “abc”, 0xaa]
  print(type(m))

Output:

- m = [{1: {1, 2, 3}, 2: [9, 8, 0]}]
  print(type(m))

Output:

  print(type(m[0]))

Output:

```
print(type(m[0][1]))
```

Output:

```
print(len(m))
```

Output:

```
print(len(m[0]))
```

Output:

6) What is output of the following code snippet? [3 mark]

```
dictionary = {"mammal": "cat", "fish": "trout", "bird": "owl"}
print(dictionary.keys( ))
```

Output:

```
print(dictionary.items( ))
```

Output:

```
for k, v in dictionary:
    print(k)
```

Output:

7) What is output of the following code snippet? [1 mark]

```
import math
def my_function(numbers):
    sqrt = math.sqrt
    result = [ ]
    for n in numbers:
        result.append(sqrt(n))
    return result
print(my_function([4, 9, 16, 25, 36, 49]))
```

Output:

8) Below are two independent code snippets. What is output in each case? [2 marks]

Snippet 1:

```
i=0
while i < 20:
   if i % 3 == 0:
      print(i)
   i += 1
```

Snippet 2:

```
i=0
while i < 20:
   if i % 3 == 0:
      print(i)
      i += 1
```

Output:

Snippet 1:

Snippet 2:

9) Tuple handling [3 marks]

- Consider the below code snippet that tries to manipulate an item of a tuple. Executing this throws an error. What is the reason behind this behavior?

```
tuple_first = (1, 2, 3, 4)
tuple_first[3] = 5
print (tuple_first)
```

Reason:

- Now consider another code snippet which also tries to manipulate the items of a tuple. What do you expect on its execution? Why?

```
tuple_second = (1, 2, 3, 4, [1, 2, 3, 4])
tuple_second[4][3] = 5
print (tuple_second)
```

Output:

Reason:

10) What is output in each of the following cases? [3 marks]

```
m = "I have a cat"
print(m[7:10])
```

Output:

```
print(m[:])
```

Output:

```
print([i*2 for i in m[:5]])
```

Output:

11) Below are two independent code snippets. What is output in each case? [2 marks]

Snippet 1:

```
m = {"a","b","c"}
m.add("c")
m.add("d")
print(m)
```

Snippet 2:

```
m = ["a","b","c"]
m.append("c")
m.append("d")
print(m)
```

Output:

Snippet 1: Snippet 2:

12) What is output of the following code snippet? [1 mark]

```
m = " 'I have a cat, her name is Kit.' "
print("".join([i for i in m if i.isalpha ( ) or i == " "]))
```

Output:

13) What is the output of each of the following code snippets? [3 marks]

Snippet 1:

```
for i in range(3,9):
   if i == 6:
      break
print(i)
```

Snippet 2:

```
for i in range(3,9):
   if i == 6:
      continue
print(i)
```

Snippet 3:

```
for i in range(3,9):
   if i == 6:
      pass
print(i)
```

Output:

Snippet 1: Snippet 2: Snippet 3:

14) What is output in each of the following cases? [5 marks]

a = {"x" : 1, "y" : 2, "z" : 3}
b = {"w" : 10, "x" : 11, "y" : 2}

print(a.keys() & b.keys())

Output:

print(a.keys() - b.keys())

Output:

print(b.keys() - a.keys())

Output:

print(a.items() & b.items())

Output:

print(a.items()^b.items())

Output: