Programming Python for Bioinformatics Exam – theoretical part

Name:

Date:

1. What will be the output of the following code snippet?

```
a = [1, 2, 3, 4, 5]
sum = 0
for ele in a:
    sum += ele
print(sum)
```

a) 15
b) 0
c) 10
d) None of these

Answer: 15

2. What will be the output of the following code snippet?

```
def solve(a, b):
    return b if a == 0 else solve(b % a, a)
print(solve(20, 50))
```

a) 10
b) 20
c) 50
d) 1

Answer: 10

3.What will be the output of the following code snippet?

```
example = ["Sunday", "Monday", "Tuesday", "Wednesday"];
print(example[-3:-1])
```

a) [“Monday”,”Tuesday”]
b) [“Sunday”,”Monday”]
c) [“Tuesday”,”Wednesday”]
d) [“Wednesday”,”Monday”]

Answer: a (This is an example of slicing with negative indexes in a list. [-3:-1] here is equivalent to slicing the 2nd and 3rd index(1-based indexing) of the list.)

4. What will be the output of the following code snippet?

```
numbers = (4, 7, 19, 2, 89, 45, 72, 22)
sorted_numbers = sorted(numbers)
odd_numbers = [x for x in sorted_numbers if x % 2 != 0]
print(odd_numbers)
```

a) [2,4,7,19,22,45,72,89]
b) [4,7,19,2,89,45,72,22]
c) [2,4,22,72]
d) [7,19,45,89]

Answer: d

5. What will be the output of the following code snippet?

```
s1 = {1, 2, 3, 4, 5}
s2 = {2, 4, 6}
print(s1 ^ s2)
```

a) {1,2,3,4,5}
b) {1,3,5,6}
c) {2,4}
d) None of the above

Answer: b (symmetric difference)

6. Suppose we have a set a = {10,9,8,7}, and we execute a.remove(14) what will happen ?

a) We cannot remove an element from set.
b) Method is executed but no exception is raised.
c) Key error is raised.
d) There doesn’t exist such method as remove

Answer: c (since there is no such element in the set, so key error is raised.)

7. What will be the output of the following code snippet?

```
class Teacher:
    def __init__(self, id, age):
        self.id = id
        self.age = age
        print(self.age)
tear = Teacher("John", 20)
tear.age = 30
print(tear.age)
```

a) 20
   John 30

b) 20
   30

c) John
   30

d) 30
   John 20

Answer: b

8. Which of the following statements would create a tuple in python?

a) mytuple = ("apple", "banana", "cherry")
b) mytuple[123] = ("apple", "banana", "cherry")
c) mytuple = ("2" * ("apple", "banana", "cherry"))
d) None of the these

Answer: a

9.What is the output of the following program?

```
import re
p = re.compile('\d+')
print(p.findall("I met him once at 11 A.M. on 4th July 1886"), end = " ")
p = re.compile('\d')
print(p.findall("I went to him at 11 A.M."))
```

a) [’11’, ‘4’, ‘1886’, ’11’]
b) [‘1141886’] [‘1’, ‘1’]
c) [’11’, ‘4’, ‘1886’] [’11’]
d) [’11’, ‘4’, ‘1886’] [‘1’, ‘1’]

Answer: d Explanation: \d is equivalent to [0-9] and \d+ will match a group on [0-9], group of one or greater size. In first statement, group of digits are 11, 4, 1886. In the second statement, \d will treat each digit as different entity, thus 1, 1.

10.What is the output of the following program?

```
str1 = '{2}, {1} and {0}'.format('a', 'b', 'c')
str2 = '{0}{1}{0}'.format('abra', 'cad')
print(str1, str2)
```

a) c, b and a abracad0
b) a, b and c abracadabra
c) a, b and c abracadcad
d) c, b and a abracadabra

Answer: d Explanation: String function format takes a format string and an arbitrary set of positional and keyword arguments. For str1 ‘a’ has index 2, ‘b’ index 1 and ‘c’ index 0. str2 has only two indices 0 and 1. Index 0 is used twice at 1st and 3rd time.