## **LAB 06**

## **SUBMISSION INSTRUCTIONS**

Type/write your answers on the document and submit it as a pdf file with the name JaneDoe.pdf (replace JaneDoe with your first and last name respectively).

## **QUESTIONS**

1. (10pts): What is the Big O notation of the expressions below:

a. 
$$O(n + n + 9999)$$
 O(n)

b. 
$$O((n^3 + 3) * (n + 5))$$

c. 
$$O(12n + 6n^3 + 1000)$$
  $O(n^3)$ 

d. 
$$2n^3 + O(n^2)$$
 O(n^3)

e. 
$$log_2n + 2 + log_5n$$
 O(logn)

2. (20pts): What is the time complexity of the functions below?

_	Code	Time complexity
a)	def test(n):	O(n^2)
	for i in range(n):	O(11 2)
	for j in range(n):	
	print(i, j)	
b)	def test(n):	
	for i in range(n):	0(=)
	print(i)	O(n)
	for j in range(n):	
	print(j)	
c)	def test(x, y):	
	for i in range(x):	O(x + y)
	print(i)	
	for j in range(y):	
	print(j)	
d)	def test(n):	
	i = n	O(n)
	while i > 0:	<b>S</b> (11)
	<pre>i = i - 2 print(i)</pre>	
	def test(n, m):	
e)	for i in range(m):	O(m^2 * n)
	for j in range(m):	O(111 2 11)
	k = n	
	while k > 0: k = k - 2	
	<pre>print(i, j, k)</pre>	
f)	def test(n):	0(1)
	ans = n + 1	0(1)
	return ans	

```
def test(n):
g)
        for i in range(n):
                                                           O(n^3)
        print(i)
        for i in range(n):
           for j in range(n):
              for k in range(n):
                 print(i, j, k)
     def test(n):
h)
                                                           0(1)
        for i in range(0, 100, n):
         print(i)
     def test(n):
i)
                                                           O(nlogn)
         for i in range(0, n):
            k = 1
            while k < n:
               k = k * 2
               print(i, k)
     def test(n):
j)
         for i in range(\theta, n):
                                                          O(n^3)
             k = 1
             while k < n:
                k = k * 2
                 print(i, k)
         for i in range(0, n):
             for j in range(0, n):
                 for k in range(0, n):
                 print(i, j, k)
```