

Exam 3 Review

Name:

1. What is the output of this program? Draw the function frame diagrams (showing the variables in each function frame) while tracing the code.

```
1 def mystA(x: int, a: list) -> None:
2     a[0] = a[0] + 1
3     x = x + 1
4     print(x)
5     print(a)
6     return 1
7 def mystB(x: int, lst: list) -> int:
8     lstc = lst
9     lst = [0,0]
10    lstc[0] = 6
11    print(x)
12    print(lst)
13 def main() -> None:
14    x = 0
15    y = 3
16    lst = [5,9,7]
17    x = mystA(x, lst)
18    print(x, y)
19    print(lst)
20    x = x + 1
21    y = y - 1
22    lstc = lst
23    lst[1] = 2
24    print(x, y)
25    print(lst)
26    print(lstc)
27    mystB(y, lst)
28    print(x, y)
29    print(lst)
30    lst = [1,2,3]
31    print(lst)
32    print(lstc)
33    lstc[2] = 10
34    print(lst)
35    print(lstc)
36 main()
```

```
1
[6, 9, 7]
1 3
[6, 9, 7]
2 2
[6, 2, 7]
[6, 2, 7]
2
[0, 0]
2 2
[6, 2, 7]
[1, 2, 3]
[6, 2, 7]
[1, 2, 3]
[6, 2, 10]
```

Consider the following code snippet:

```
1 for i in range(4):
2     print ("Outer loop")
3     for j in range(5):
4         print("Inner loop")
```

2. How many times will *Outer loop* be printed by the program below? 4

3. How many times will *Inner loop* be printed by the program below? 20

4. What does the following code snippet output? Draw the tracing loop table.

```
1 for i in range(3):
2     for j in range(3):
3         print(i,j)
```

```
0 0
0 1
0 2
1 0
1 1
1 2
2 0
2 1
2 2
```

5. What does the following program print? Draw the tracing loop table.

```
1 def printit(n: int) -> None:
2     for i in range(n):
3         s = ""
4         for j in range(i+1):
5             s = s + "*"
6         print(s)
7
8 printit(4)
```

```
*
**
***
****
```

Consider the following code snippet:

```
1 for i in range(2,12,2):
2     print ("Outer loop")
3     for j in range(1,3):
4         print("Inner loop")
```

6. How many times will *Outer loop* be printed by the program below? 5

7. How many times will *Inner loop* be printed by the program below? 10

8. What does the following program print? Draw the tracing loop table.

```
1 def sumit(lst: list) -> None:
2     s = 0
3     i = 0
4     while s >= 0:
5         for value in lst[i]:
6             s = s + value
7         print(i, s)
8         i += 1
9 sumit([[1,2,3], [2, -4], [1,-11,1], [2,2]])
```

```
0 6
1 4
2 -5
```

9. What does the following program print? Draw the tracing loop table.

```
1 def funcX(items: list, n: int) -> None:
2     print(n)
3     while n > 0:
4         n = n - 2
5         z = ""
6         print(n)
7         for item in items:
8             z += item[n]
9         print(z)
10    print(n)
11 funcX(["apple", "banana", "cherry", "doughnut"], 3)
```

```
3
1
paho
-1
eayt
-1
```