

FIFTH QUIZ

You have 15 minutes from the start of class to complete this quiz. Read the questions with care; work with deliberate speed. Don't give us more than we ask for. The usual instructions apply. Good luck!

Problem 1 (10 points)

(a.1) (5 points) What is the polynomial representing the execution time of the following code, in terms of n ? Count assignment statements and function calls.

```
print("The sun did not shine; it was too wet to play");
print("So we cat in the house all that cold, cold wet day.")
for a in range(n):
    do_something_good(a);
    for i in range(n):
        do_something_bad(a, i)
        handle_something(a*i)
        handle_something_else(a/i)
    print("I sat there with Sally. We sat there, we two.")
print("And I said, 'How I wish we had something to do.'")
```

(a.2) (2 points) What is the O -notation of the execution time of the code above?

(b) (3 points) Give the O -notation of each of the following polynomials. Read them carefully.

(b.1) $17n^2 + 35n + 1355$

(b.2) $23 \log n + 4n \log n + 15n + 6$

(b.3) $1 + 2n + 3 \log n$

Problem 2 (10 points)

(a) (3 points) Suppose a Restaurant object has a field/attribute called price. Fill in the body of this function; it only requires one line:

```
def is_cheap(r: Restaurant) -> bool:
    """ Return True if restaurant's price is under $10.00 (and False otherwise)
    """
```

(b) (2 points) Rewrite the function definition above to take a second parameter, the price threshold below which a Restaurant is cheap.

(c) (5 points) Complete the definition of the following function according to the docstring comment (purpose statement), calling the function you wrote for part (b) (whether or not you think you coded it correctly):

```
def cheap_restaurants(L: 'list of Restaurant') -> 'side effect/output' :
    """ Print out every restaurant on the input list whose price is under $20.
    """
```