UC Berkeley's CS10 Fall 2019 Quest – Instructor Dan Garcia

Your Name (first last) _____ *SID* _____ *Lab TA's Name* _____

← *Name of person on left (or aisle)* _____ _____ *Name of person on right (or aisle)* →

What's that Smell? Oh, it's Potpourri! (2 pts for 1-6, we drop lowest one)

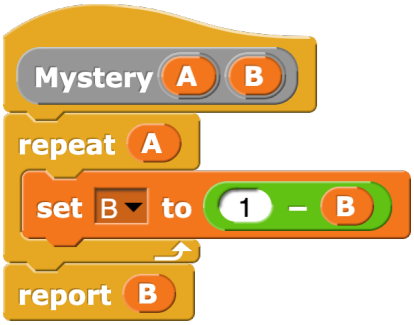
Fill in the correct circles & squares completely…like this: ● *(select ONE)* ■ *(select ALL that apply)*

Question 1: Which of the following is a **true** statement regarding Abstraction? (select ONE)

○ A person from 1920 could still easily *start today's car* thanks to *abstraction*.
○ Someone who hires someone to steal a neighbor's pool and puts it in their backyard, and tells them exactly how to move the pool and how to install it, by providing a ton of details that help the thief is using *abstraction*.
○ The Apple power brick that supports different plugs for different countries is an example of *detail removal*.
○ Recipe authors who write "For a milkshake: blend ice cream, milk, vanilla and <fruit>" use *generalization*.
○ None of the Above.

Question 2: What is $100_2 + 11_{10}$? (select ONE)

○	○	○	○	○	○	○	○
A_{16}	B_{16}	C_{16}	D_{16}	E_{16}	F_{16}	G_{16}	H_{16}



Question 3: What does Mystery 200 5 report? (fill in the blank) ☐

What does Mystery 201 5 report? (fill in the blank) ☐

Question 4: What is the *Domain* and *Range* of **`Foo`**?
The expression does not cause an error. (select ONE)

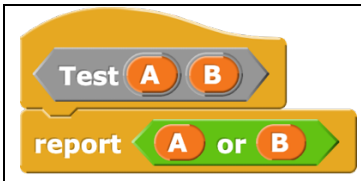
The Domain of `Foo` is a…					The Range of `Foo` is a…				
○	○	○	○	○	○	○	○	○	○
number	word	sentence	letter	character	number	word	sentence	letter	character

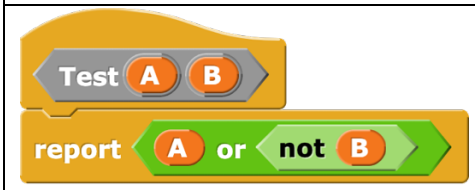
(The block here is used for Questions 5 & 6)

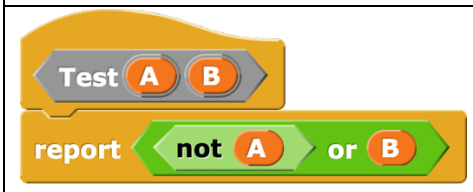
Question 5: If **`A`** and **`B`** are Booleans, and the output from **`Test`** is false, which can you say *for sure*? (select ALL that apply)

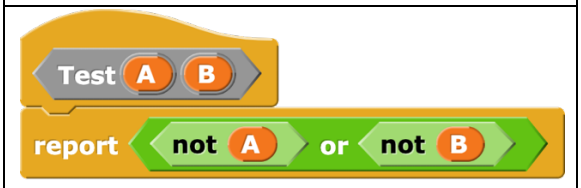
☐	☐	☐	☐	☐
`A` must be true	**`B`** must be true	**`A`** must be false	**`B`** must be false	None of these

Question 6: Which of the following is equivalent to the original **`Test`** block? (select ONE)

○


○


○


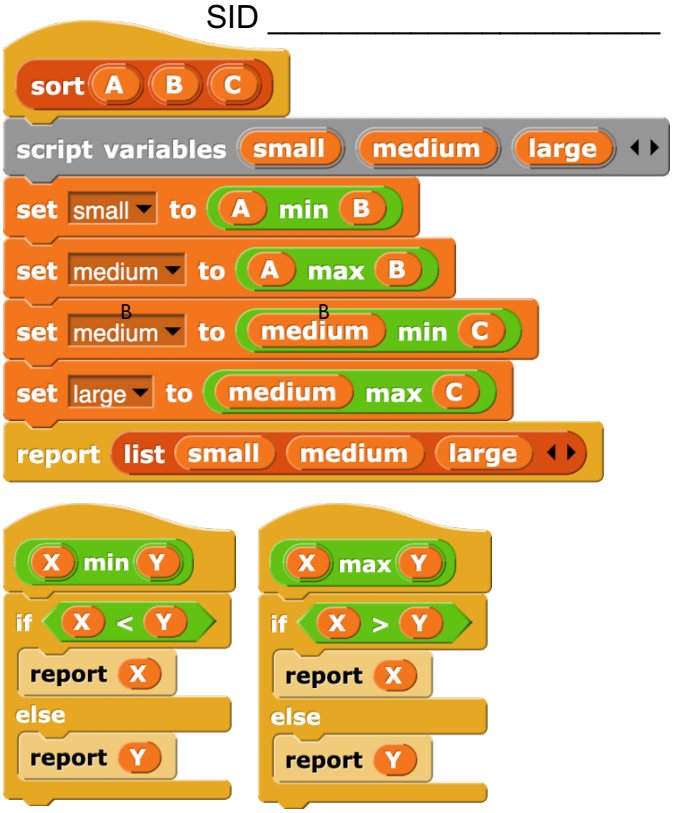
○


○ None of these

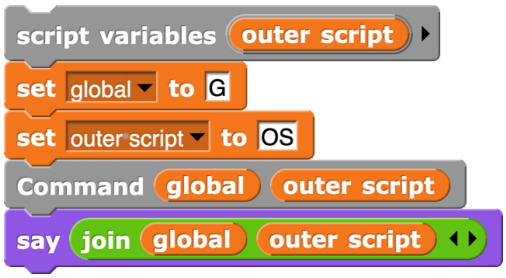
SID _____

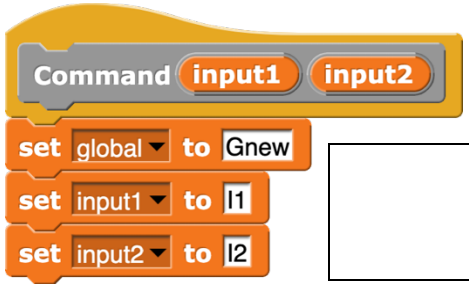
Question 7: *Now line up for the assembly…* (6 pts)
This script is intended to take three distinct numbers and return a list of three numbers, where the smallest number will be listed first, the middle number second, and the largest last. What do we know for sure? (select ONE per row)

a) The first number (small) is the smallest number among A, B and C	**yes ○ ○ no**
b) The second number (medium) is the middle number among A, B and C	**yes ○ ○ no**
c) The third number (large) is the largest number of A, B and C	**yes ○ ○ no**



Question 8: *I command you to change!!…* (4 pts)
What gets said if I run the script below? The variable global is a global variable. (fill in the blank)





Question 9: My favorite "Friends™" episode? *The one with the Higher-Order Functions!* (5 pts)

friends is a list of your friends with all the information you'd need about them to answer the queries below (e.g., it has their names, their phone number, address, family information, how much they owe you, etc.). Thankfully, *you don't need to know* how we actually store the data for each friend (e.g., a database, a sublist of data fields, a sentence, etc.). Given each query, *which is the simplest HOF expression* to solve it? (Note combiner, mapper, and predicate are just placeholders for whatever functions you'd need.) (select ONE per row) *Hint: None of these are used twice…*

	map mapper over friends	map mapper over keep items predicate from friends	keep items predicate from friends	keep items predicate from map mapper over friends	combine friends using combiner	Can't be done with any of the expressions on the left. ☹
a) Who is the *oldest friend*?	○	○	○	○	○	○
b) What are the *zip codes of friends who sent you holiday cards last year*?	○	○	○	○	○	○
c) Who are the *friends who both owe you money AND have rich parents* they can borrow from to pay you back?	○	○	○	○	○	○
d) Given the phone number of every friend, *what are the costs of an hour phone call to each, converted to Euros*?	○	○	○	○	○	○
e) What are *all their zip codes that are palindromes*? (I.e., the same forward as backwards, like 98289)	○	○	○	○	○	○

You did it!! Congratulations!!