**Computer Science Review** Name:

**1. For a list of dogs = [‘lab’, ‘pit’, ‘border collie’, ‘beagle’], know how to print each dog using a for loop a.) with the range function and b.) without the range function.**

**2. What is the difference between delete, remove, and pop for lists? Know how to use each.**

**3. What do the commands .index(), .find(), .replace(), .append() do?**

**4. What is the difference between sorted() and .sort()? What does .sort() return? Know how to use both.**

**5. Range function – know what range(5), range(1,5), range(1,5,2), range(5,2,-1) give you out?**

**6. Modulo – what is 8%3, 6%3, 2%3?**

**7. What does it mean to be mutable? Are strings mutable? Are lists mutable? Which gives you an error: mystring[1] = ‘h’ or mylist[1] = ‘hello’?**

**8. What type of errors do you get out from these codes?**

**a. word = ‘hello’**

**print(myword)**

**b. dogs = [‘lab’, ‘pit’, ‘collie’]**

**print(dogs[3])**

**c. for i in range(5):**

**print(i)**

**d. print(‘hi’+5)**

**e. word = 'hello'**

**word[0]='z'**

**9. Know how to parse strings. What is the easiest way to print a word in reverse? What do these give you out?**

word = ‘hello’

word[::2]

word[:]

word[:-1]

word[::-1]

**10. What is the difference between .lower() and .islower()? What does .islower() return?**

**11. How you split a string by spaces? How can you split a string by other delimiters such as ‘%’? Can you use .split to split a word into letters? Can you use “list” to split a word into letters?**

**12. Know how to update a string a.) using the .join function and b.) creating an empty string and updating it inside a loop.**

**13. How do you take in a single string of numbers ‘5 10 15 13 2’ from a user and return the product of them?**

**14. Know how to write nested if loops. For example, if it’s sunny, ask if it is humid out. If the user says no, say “Let’s go outside and play.” If it is either not sunny or is sunny and humid, print “let’s stay inside.”**

**15. Know how to write a function that takes in a number and returns its factorial.**

**16. Know how to write a function that takes in a number and returns if it is prime.**

**17. Know how to write a function that takes in a lower and upper number and returns all primes in between.**

**18. What is the difference between break and continue?**

**19. What are keyword and positional arguments?**

**20. Know how to take in an arbitrary number of arguments and print them out using .format notation. Definitely know the student data example: ‘**Write a function called student\_data that takes in a student's first and last name. In addition, it may accept additional arguments of the student's email address and advisor. It can also take in a student's list of sports. Use .format notation.’

**21. Know random.randint, random.choice, and rand.sample. Does rand.sample sample with replacement or without replacement?**

**22. Know how to plot a simple function using np.arange and plt.plot(). Where does np.arange(0,4,0.5) start and stop? If I wanted to print x2 using np.arange at the x=values [-5,5] inclusive in step sizes of 0.25 what would go inside np.arange?**