This page has been intentionally left blank

Note that any work that you do on this page will NOT be graded.

1. What is Moore's Law?

_____

_____

_____

Does Moore's law still hold true?

_____

List one effect of Moore's law on society?

_____

_____

_____

2. You are at a fundraising banquet and sitting on your table two individuals are arguing about computers and the different memory options that exist. Some of the statements that they make are listed below. First, determine which statements are false. Circle the letter next to the incorrect statements. Next, fix the incorrect statements in the space provided.

   A. Registers are very large and very fast to access

      _____

   B. Cache is slow memory that exists on the chip

      _____

   C. RAM is bigger than cache

      _____

   D. RAM is faster to access than data on the hard drive

      _____

   E. Hard drive is on the motherboard and is very slow to access

      _____

3. Define computational thinking

_____

_____

_____

4. Give an example of an object or effect that it is difficult to represent as a vector-based image. State one reason why it is difficult.

_____

_____

_____

5. Why is it a good idea for a company to have a vector based version of their logo?

_____

_____

Use the scenario below to answer the next two questions. You ran into a friend from high school while shopping and she mentioned that she was interested in learning how to write computer programs and has decided to learn an assembly language. Your friend has no prior programming experience.

6. What are two reasons why learning an assembly language might be a bad idea?

_____

_____

_____

7. What other type of programming language would be a better choice for your friend to learn?

_____

8. What is unconscious bias?

_____

_____

9. In class we discussed the situation at Facebook involving trending topics, give an example of unconscious bias that may have existed.

_____

_____

_____

Use the scenario to answer the next four questions. As a manager of an exclusive clothing boutique you are tasked with instructing store employees on the best way to arrange store items. The clothing needs to be arranged by designer (alphabetically) and then by item price (ascending order). The exclusive nature of the boutique and the clientele that you cater too necessitates that the store be optimized for customer comfort. To make this possible, the space in the store for employees to arrange and sort through clothing items is limited.

10. In class we discussed a series of sorting algorithms, if the employees were familiar with the simple and insertion sort algorithm, which algorithm would you recommend that they use and why would you recommend that algorithm?

    _____

    _____

    _____

    _____

11. If an employee was sorting 10 clothing items, on average, how many comparisons are needed using the Selection Sort algorithm discussed in class?

    _____

12. If an employee was sorting 10 clothing items, on average, how much space (i.e., memory slots) is needed to sort the items when using the Simple Sort algorithm discussed in class?

    _____

13. One of the other supervisors had previously given the employees instructions (i.e., algorithm) for arranging the items, but the instructions only worked for shirts, it did not work for skirts. Which computational building block did the supervisor's algorithm violate?

    _____

14. Explain the difference between unambiguous and ambiguous tasks and give an example of each type of task.

Unambiguous - _____

_____

_____

_____

Ambiguous - _____

_____

_____

_____

For the number conversion problems, Write the answer in the space provided. Use the provided extra sheet for your rough work. The conversion table exists on the last page of the exam.

15. Convert 0x10A to decimal

_____

16. Convert decimal 202 to hexadecimal

_____

17. Convert decimal 157 to binary

_____

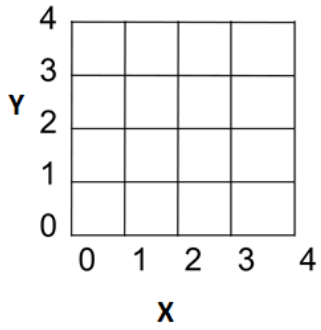
18. Convert 0b10101111 to decimal

_____

19. Convert 0b1111000100 to hexadecimal

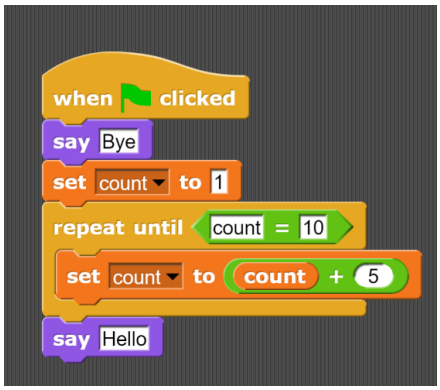
_____

20. What image is represented by the following sequence?
    4,0, 2,3, 2,1, 4,0



For the following snap programs when asked **What does the sprite say when this program is run?**, you do not need to indicate the number of seconds the message is displayed on the screen. Just write down the message in the space provided.

21. What does the sprite say when this program is run?

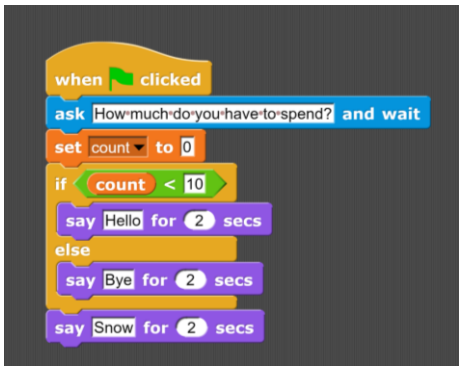


_____

_____

_____

22. If the user input is 5, what does the sprite say when this program is run?

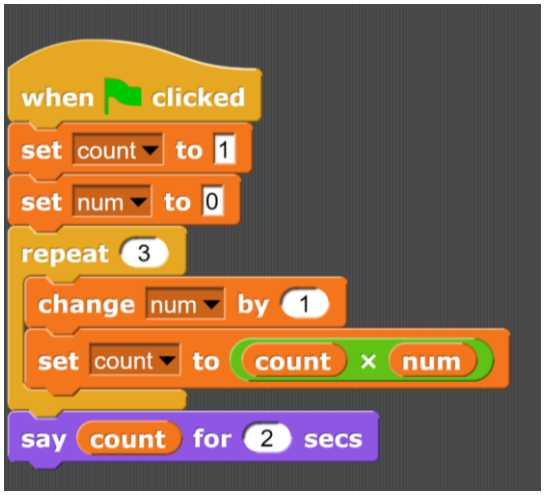


_____

_____

_____

23. What does the sprite say when this program is run?



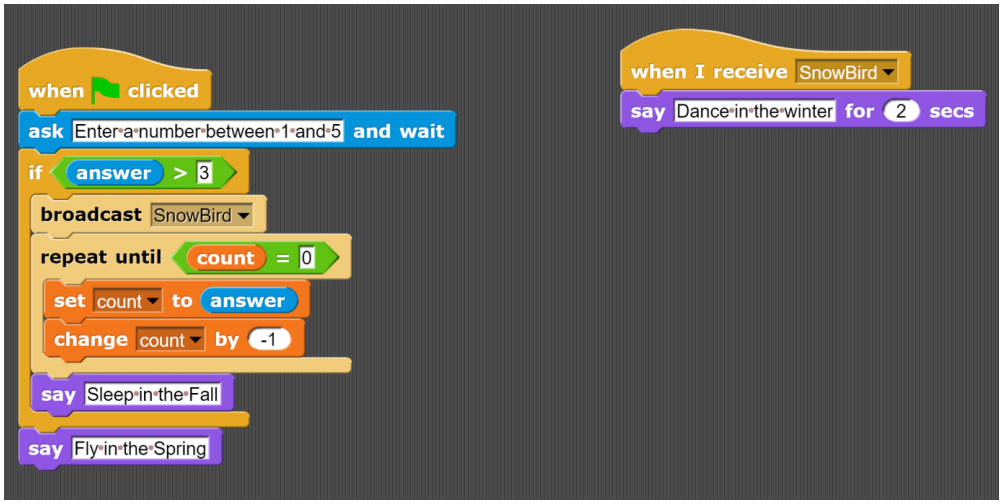
_____

_____

_____

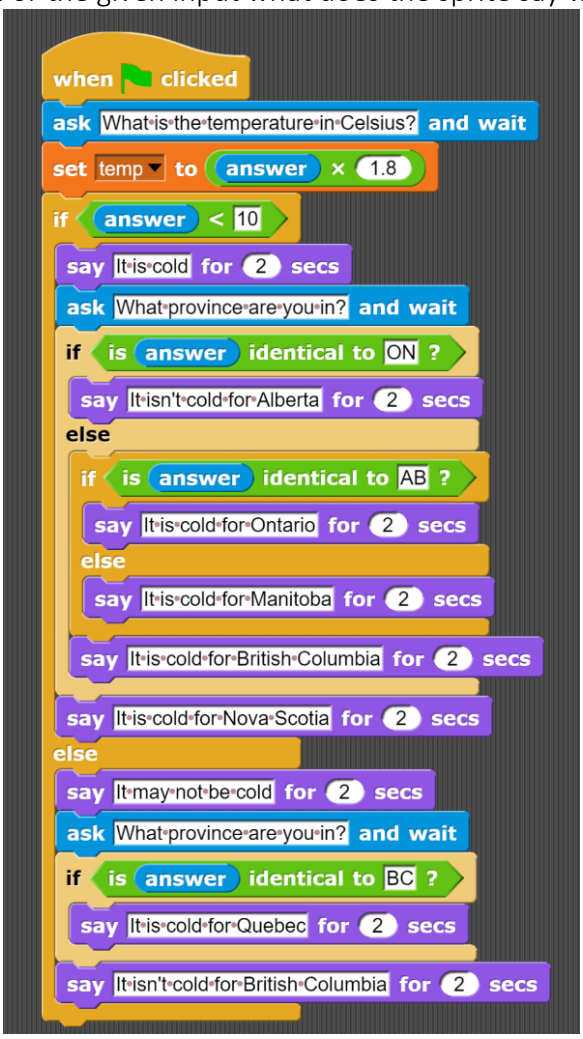
_____

24. For the given input what does the sprite say when the program is run? Fill in the table for each input



Enter a number between 1 and 5?	Output
4	_____ _____
2	_____ _____

25. For the given input what does the sprite say when the program is run? Fill in the table for each input



What is the temperature in Celsius?	What province are you in?	Output
5	AB	_____ _____ _____ _____
15	BC	_____ _____ _____ _____

26. As a photographer for the Canadian Broadcasting Company, you constantly find yourself taking pictures, all around the country. Currently you are trying to determine which compression to use so that you can send the pictures to your boss. If you wanted to preserve the original quality of the image which bitmap compression should you use and what is the limitation of your chosen compression?

_____

_____

_____

_____

27. As an employee of an advertising agency, you are tasked with developing a classifier that will correctly determine if a potential Super bowl ad will be considered controversial or not. You have data that includes all the past ads for your company and whether or not they were controversial. List the steps that you need to engage in, in order to create the classifier. You are not required to write out the algorithm or create the classifier, just list the steps for creating a classifier.

_____

_____

_____

_____

_____

_____

_____

28. As a painter you are in the habit of using a color palette that clearly states each color. You are now working on a project that requires you to work with the hex representation of each color. In order to make your work progress seamlessly you decided to create a cell phone app that consumes a hex color and produces the color palette equivalent. For instance, if your app is given the hex code #F109DF, it should produce "a shade of purple". Create an algorithm that reads in a hex code and produces the color palette shade. Assume that you have a lookup table stored on your phone that details the combination of primary colors. A snippet of the table is shown below

Primary Color 1	Primary Color 2	Result
Red	Blue	Purple
Red	Green	Yellow
…		

Note: you are not asked to complete the lookup table. The full lookup table already exists on your phone.

Use this sheet for work that you want graded. Make sure you clearly state which question(s) you are answering on this page.

Information you may find useful. This sheet will NOT be graded.

Powers of two

2 raised to the power of	
0	1
1	2
2	4
3	8
4	16
5	32
6	64
7	128
8	256
9	512

Hexadecimal digits

Binary Representation	Hexadecimal representation
0000	0
0001	1
0010	2
0011	3
0100	4
0101	5
0110	6
0111	7
1000	8
1001	9
1010	A
1011	B
1100	C
1101	D
1110	E
1111	F

This page has been intentionally left blank

Note that any work that you do on this page will NOT be graded.