You may take this test with you afterwards, but you must turn in your bubble form answer sheet.

This test has the following sections:

I. True/False.................................60 points; (30 questions, 2 points each)
II. Multiple Choice.........................40 points; (8 questions, 5 points each)

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100 points total

This test is worth 10\% of your final grade. You must put your answers on the bubble form. This test is closed book and closed notes. For the multiple choice problems, select the best answer for each one and select the appropriate letter on your answer sheet. Be careful - more than one answer may seem to be correct. Some questions are tricky.

**True/False: (2 points each)** On your bubble form fill out A for true and B for false.

1. Computer memory holds information once the computer is turned off.
2. At the end of the short story “And Mimsey were the Borogoves” the children disappear and can no longer be reached by their parents.

**The following are questions having to do with Chapter 5 of the book "Blown to Bits."** As we did in class, for each of these choose A (for True) if the statement/example/topic was covered in the chapter, B (for False) if the statement/example/topic was not covered in the chapter.

3. The “Caesar cipher” is a rotating encoding technique used to shift letters based on the letters C-a-e-s-a-r.
4. The Vigenere cipher is considered unbreakable so far.
5. In theory one-time pads are unbreakable.
6. Cryptographic systems are considered more reliable if the details of how they work are made public.
7. Phil Zimmerman created strong encryption software and distributed it freely in spite of the objections of the government and the RSA security company.

**The following are questions having to do with Chapter 6 of the book "Blown to Bits."** As we did in class, for each of these choose A (for True) if the statement/example/topic was covered in the chapter, B (for False) if the statement/example/topic was not covered in the chapter.

8. The Recording Industry Association of American (RIAA) sued Tanya Anderson, claiming that she owed them close to a million dollars for illegally downloading music.
9. The RIAA sued a 83-year old woman for illegal downloads, however it turned out the woman was deceased.
10. The Napster file-sharing site was found guilty of secondary copyright infringement and was shut down.
The Digital Millennium Copyright Act (DMCA) prohibits circumventing encrypted information, even if the information itself isn’t copyrighted.

The following are questions having to do with Chapter 7 of the book "Blown to Bits." As we did in class, for each of these choose A (for True) if the statement/example/topic was covered in the chapter, B (for False) if the statement/example/topic was not covered in the chapter.

T  F  11. The Digital Millennium Copyright Act (DMCA) prohibits circumventing encrypted information, even if the information itself isn’t copyrighted.

T  F  12. Katherine Lester, a 16-year old honors student from Fairgrove, Michigan went missing in 2006. Authorities analyzing her computer found she had met a man online and then divulged personal information, leading to this man abducting her.

T  F  13. French courts demanded that the US company Yahoo.com take down web content advertising Nazi paraphernalia. In the end US courts upheld the French court requests.

T  F  14. In Microsoft Excel an if statement can be used to selectively apply a formula.

T  F  15. In Microsoft Excel when typing in numbers into the spreadsheet it is important to type in the right number of decimal places so that data is uniform and lines up correctly.

T  F  16. Microsoft Excel allows sorting names in alphabetical order, however does not allow sorting by dates.

T  F  17. The “mind-reader” program that guesses a number between 1..50,000 will always be able to find the number in 16 guesses or less.

T  F  18. Consider the “number guess” program implemented in AppInventor. The value for the current guess at each point is displayed in a TextBox on the screen, however it must be stored into a variable before it can be used in any sort of calculation in the program.

T  F  19. An algorithm is an approximation of the strategy to be used in solving a problem.

T  F  20. A parity bit is an extra bit added to a digital transmission used to detect an error.

T  F  21. A selection sort is generally faster than a bubble sort.

T  F  22. Binary search is generally slower than linear search.

T  F  23. Think back to the Muddy City problem represented using a graph. The solution set of paths can always be found by using a strategy of first selecting the paths that are shortest.

T  F  24. Think back to the Ice Cream Town problem represented using a graph, which is an example of a dominating set. The solution (smallest set of points covering the graph) can always be found by using a strategy of first selecting the nodes with the smallest number of connections.

T  F  25. The <b> and </b> tags in HTML allow you to enable and disable brightness in an image.

T  F  26. The <i> HTML tag is used to indent a line.

T  F  27. Recall the tower building activity using Legos. To build a tower 113 stories high it would take 11 weeks.

T  F  28. Computers are fast enough that it doesn’t really make a difference which sorting technique is used.
29. The difficulty to quickly do prime factorization of a large number is the basis behind some strong encryption techniques.

30. The photo manipulation demonstrated in class could be done using either GIMP or Photoshop.

Multiple Choice (4 points each)

31. Think back to the exercise in class where we counted how many students were in the class. Everyone started out as a number 1, then compared with another person standing. One person became the sum of the two numbers, and the other person sat down. If a set of such comparisons were all done one stage at a time, how many stages would be needed to count 1,000 people?
   a) 8  
   b) 10  
   c) 50  
   d) 500  
   e) None of the above

32. Consider the ASCII table, where the decimal value for ‘A’ is 65, the value for ‘a’ is 97, and the value for ‘0’ is 48. What is the equivalent of the following binary message, where each 7 bits represent a single ASCII character?

   A   B   C   D   E   F   G   H   I   J   K   L   M   N   O   P   Q   R   S   T   U   V   W   X   Y   Z
   0100000 0100001 0100010 0100011 0100100 0100101 0100110 0100111 0101000 0101001 0101010 0101011 0101100 0101101 0101110 0101111 0110000 0110001 0110010 0110011 0110100 0110101 0110110 0110111 0111000 0111001 0111010 0111011
   72  69  77  80

   a) OHMY  
   b) GOCS  
   c) HELP  
   d) OLYM  
   e) None of the above

33. If a transposition cipher is being used, what is the translation for the text:

   THE END

   a) SGDDMC  
   b) UIFFOF  
   c) VJGGPG  
   d) WKHHQF  
   e) None of the above

34. Think back to the “Muddy Town” activity that we explored in class. How many of the following would likely use the same sort of minimal spanning tree that we found for Muddy Town?

   - Plumbing,   - Electric lines,   - a UPS delivery route,   - Order of cities to visit for a salesperson

   a) 1  
   b) 2  
   c) 3  
   d) 4  
   e) None of the above
35. In Roger Fenton’s photo “The Valley of the Shadow of Death” there were two pictures, one with cannon balls on the road and one without. After many attempts at analysis one was determined to be taken before the other because of:
   a) The difference in shadows in the two pictures
   b) Pictures taken at a modern day visit to the same location
   c) Captions from an old newspaper that used the pictures
   d) The difference in the position of rocks on the hillside
   e) All of the above

36. The point of showing examples of photo manipulation in class and developing our own ability to manipulate photos is:
   a) Manipulating photos is fun and entertaining
   b) Understanding photo manipulation tools helps us to appreciate the artistry of other manipulated photos
   c) Understanding photo manipulation helps us question whether or not photos are real
   d) Manipulating photos is helpful for developing illustrative materials
   e) All of the above

37. How many of the following questions could be answered using the food happiness data we gathered in class?
   - On average how happy are people when they eat?
   - Are males in the class happier than females in the class?
   - What times of day are the most popular for eating?
   - Do students in the class tend to be happier when eating at home vs. at a restaurant?

   a) 1
   b) 2
   c) 3
   d) 4
   e) None of the above

38. How many of the following were issues that we resolved when we chose a food happiness data format for the entire class?
   - What is the scale of data (1..3, 1..5, 1..7, 1..10)
   - Whether we needed to store both day of week as well as date
   - How many entries were provided by each person
   - Whether or not information was lost when we made all happiness level records numeric

   a) 1
   b) 2
   c) 3
   d) 4
   e) None of the above