Closed book. No notes. Work strictly from memory. **No calculators. Scratch paper okay.** You may write on the test.

1/2p. Let L be the language accepted by the regular expression "`(a?|bab)a*+`". List the shortest five (or all) strings in L.

2/2p. Let L be the language accepted by the regular expression "`bbaab?*`". List the shortest five (or all) strings in L.

3/2p. Let L be the language accepted by the regular expression "`abaabbaa*`". List the shortest five (or all) strings in L.

4/2p. Let L be the language accepted by the regular expression "`a?bab*+`". List the shortest five (or all) strings in L.

5/2p. Let L be the language accepted by the regular expression "`(abbb*bab)+`". List the shortest five (or all) strings in L.

6/2p. Let L be the language accepted by the regular expression "`b*ba+b*`". List the shortest five (or all) strings in L.

7/2p. Let L be the language accepted by the regular expression "`(abab?)+ab`". List the shortest five (or all) strings in L.

8/15p. Write this program on a separate sheet of paper. Use one side of one sheet. Label it clearly. Accept two integers, a and b, from the command line (argv). Print their difference (a minus b).

9/15p. Write this program on a separate sheet of paper. Use one side of one sheet. Label it clearly. Accept an integer from the command line (argv). Tell whether it is a multiple of 2 or not.

10/15p. Write this program on a separate sheet of paper. Use one side of one sheet. Label it clearly. Prompt for and accept two integers, a and b. Print the integers from a to b.

11/15p. Write this program on a separate sheet of paper. Use one side of one sheet. Label it clearly. Given n on the command line, print a triangle of stars, 1 on top, n at the bottom.

12/15p. Write this program on a separate sheet of paper. Use one side of one sheet. Label it clearly. Prompt for and accept a dollar amount. Tell how to pay that amount using the smallest number of the following bills and coins: twenty, five, one, quarter, dime, nickel, penny. Example input: 36.19, output: twenty=1, five=3, one=1, dime=1, nickel=1, penny=4.

Total points 89.

Answer Key (points per line)