Write your name ONLY on this cover page.

Turn off cell phones, pagers, and anything that makes a noise.

Nothing is allowed on the desk top but the test, pens, pencils, erasers, and drinks.

Do not ask a question in a way that gives away the answer to the test question.

In any code that you write on this test, you do not have to write comments or print statements that explain what the program does. Just write enough code to do what is asked.

If the code requires import statements, you must write the import statement.

1. (18 points) In the blank to the right, write the value that Python would calculate. If an error would be produced, write the word error and circle the place in the expression that the error arises. If a value is a string you must show quote marks around the string.

a. \[ x = 5 - 4 - 3 \]

b. \[ x = 2 ** 3 ** 2 \]

c. \[ x = 7 * 2 ** 3 + 9 / 2 \]

d. \[ x = 11 / \text{int}(2.5) // 2 \]

e. \[ x = 8 - 5 / (9 - 4) \]

f. \[ x = 4 \text{ // } 3 + 9 \% 3 - 4 \]

g. \[ x = \text{abs}(-7.5) \]

h. \[ x = \text{int}(9.99) \]

i. \[ x = \text{float}(-1) \]

j. \[ x = \text{eval}("7") \]
2. (20 points) What is the output of each of the following code segments? Indicate spaces as appropriate using an underscore character in the previous problem.

a. for i in range(3):
   print (i**2, end = " ")

b. for i in range(5,8):
   print (i // 2, end = " ")

c. for i in range(18, 6, -3):
   print (i)

d. total = 0
   for i in range(1, 11, 2):
       total = total + 1
   print (total)

3. For the following binary/decimal conversions assume the leftmost bit is the sign bit.
   a. Represent the decimal number -55 in a byte.
      ____________________________

   b. Represent the binary number 01101100 as a base 10 integer.
      ____________________________

4. An integer is stored in 32 bits. Using base 2 notation what is the range of integer values?
   _________________________________
I’m only going to ask you two such problems on the actual exam, but I’ve put together several for practice:

2. Write a code segment that calculates the product of a set of n values input by the user.

3. Write a program to ask the user for the values of h and g. Then calculate the following and output the results.

$$\pi \sqrt{g^3 - h}$$

3. (10 points) Write a code segment that calculates the average of n numbers.

   Remember -- n! = n*(n-1)*(n-2) … 1

4. (20 points) Write a code segment that finds the minimum of n numbers entered.

5. (20 points) Write a code segment that outputs n numbers. Each number is the multiplication of the previous two numbers. You can assume the first two numbers are 1 and 2, and that n > 2

   Example: 1,2,4,8,32
6. (10 points) Write a code segment that prompts the user for n and then calculates the n!.
Remember n! = n*(n-1)*(n-2) …1

8. Write a program that asks the user for n, then adds n terms of the series:
\[ 1 + \frac{2}{4} + \frac{3}{9} + \frac{4}{16} + \ldots + \frac{n}{n^2} \]
and displays the result.