Do not open this exam until you are told. Read these instructions:

1. This is a closed book exam. No calculators, notes, or other aids are allowed. If you have a question during the exam, please come to the front of the class.
2. You must turn in your exam immediately when time is called at the end.
3. Four problems, which add up to 45 points total. 60 minutes. Each question’s point value is indicated.
4. In order to be eligible for as much partial credit as possible, show all of your work for each problem, write legibly, and clearly indicate your answers. Credit cannot be given for illegible answers.

7. Fill in the following:

   NAME :

   G# :
For each of the following Python expressions, choose the VALUE that the expression simplifies or evaluates to. If it would be an error, choose ERROR. If multiple expressions or statements are given, give the value of the last expression in that set. All problems are independent. (17 points)

1. 5.0 / 2
   a. 3   b. 3.0   c. 2   d. 2.5   e. ERROR

2. 5 / 2
   a. 1   b. 2.0   c. 2   d. 2.5   e. ERROR

3. 7 // 2
   a. 3   b. 3.5   c. 3.0   d. ERROR

4. 1 % 3
   a. 0   b. 1   c. 2   d. ERROR

5. str(3 + 4)
   a. 7   b. “7”   c. “34”   d. ERROR

6. float(1)
   a. 1.0   b. 1   c. 0   d. ERROR

7. “3” + str(2)
   a. “5”   b. “32”   c. 32   d. ERROR

8. len([1]) < len([2])
   a. True   b. False   c. ERROR

9. list = [3, [4], 5]
   len(list[1])
   a. 1   b. 3   c. ERROR

10. lis = [1,2,3]
    lis[1] = 3
    lis
    a. [1,2,3]   b. [3,2,3]   c. [1,3,3]

11. 5 * 2
    a. 52   b. 10   c. ERROR

12. True != False
    a. True   b. False   c. ERROR
13. \[ y = [5] \\
    y = [6] \]


14. 5 is 5.0

    a. True     b.False     c.ERROR

15. 5 == 5.0

    a. True     b.False     c.ERROR

16. True or False

    a. True     b.False     c.ERROR

17. 1 is [1]

    a. True     b.False     c.ERROR
A. Trace through the following code using the scratch space below, and then write your answer in the box on the right-hand side. Then, TRANSFER YOUR ANSWER to the scantron sheet line-by-line. (5 points)

```python
ctr = 3
nums = [1, -3, 0, 1]
while ctr >= 0:
    elt = nums[ctr]
    if elt >= 1:
        print (nums[elt+1] - 1)
    elif elt > 0:
        print "positive"
    else:
        print "negatif!"
    ctr = ctr - 1
print ctr
```

18. Output for line A1:
   a. positive      b. negatif!  c. -1      d. 0      e. 1
19. Output for line A2:
   a. positive      b. negatif!  c. -1      d. 0      e. 1
20. Output for line A3:
   a. positive      b. negatif!  c. -1      d. 0      e. 1
21. Output for line A4:
   a. positive      b. negatif!  c. -1      d. 0      e. 1
22. Output for line A5:
   a. positive      b. negatif!  c. -1      d. 0      e. 1
B. Trace through the following code using the scratch space below, and then write your answer in the box on the right-hand side. Then, TRANSFER YOUR ANSWER to the scantron sheet line-by-line. (8 points)

```python
data = 4
inner = [1, data, 0]
things = [inner, str(data), "3", "cat", "4"]
ctr = 0
while ctr < (inner[2] + 2):
    if len(things[ctr]) < 3:
        print things[ctr+1]
    if len(things[ctr]) < 2:
        things[ctr] = 5
    else:
        inner[2] = 2
    ctr = ctr + 1

data = 7
print inner
ctr = 0
while ctr < len(things):
    print things[ctr]
    ctr = ctr + 1
```

WILL NOT BE GRADED!
COPY TO SCANTRON!

<table>
<thead>
<tr>
<th>B1</th>
<th>B2</th>
<th>B3</th>
<th>B4</th>
<th>B5</th>
<th>B6</th>
<th>B7</th>
<th>B8</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

23. Output for line B1:
   a. [1, 4, 0] b. 4 c. 3 d. cat
24. Output for line B2:
   a. [1, 4, 0] b. 4 c. 3 d. cat
25. Output for line B3:
   a. [1, 4, 0] b. [1, 5, 0] c. [1, 7, 0]
26. Output for line B4:
   a. [1, 4, 0] b. [1, 5, 0] c. [1, 7, 0]
27. Output for line B5:
   a. 5 b. 4 c. 3 d. 7 e. cat
28. Output for line B6:
   a. 5 b. 4 c. 3 d. 7 e. cat
29. Output for line B7:
   a. 5 b. 4 c. 3 d. 7 e. cat
30. Output for line B8:
   a. 5 b. 4 c. 3 d. 7 e. cat
C. Write code (or pseudo code) that prints the factorial of a seed integer entered by the user. Recall that 0! is 1. Though the user will always enter a number, if they don’t enter a valid integer, the code should return a warning. (15 points)