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FINAL EXAM PRACTICE PROBLEMS

Use the following line of code to answer questions 1-6.

```
lst1 = [1, 3, 5, 7, 9, 11]
```

1. What is the `len(lst1)`?
   a. 6
   b. 7
   c. 8
   d. 5

2. What is the `sum(lst1)`?
   a. 6
   b. 12
   c. 36
   d. 11

3. What is the `max(lst1)`?
   a. 11
   b. 1
   c. 5
   d. 9
   e. 36

4. What is the index of the maximum value in `lst1`?
   a. 0
   b. 4
   c. 5
   d. 6

5. What is the value of lst1 after the following line of code is run?

```
lst1.remove(3)
```

   a. `[1, 3, 5, 7, 9, 11]`
   b. `[1, 5, 7, 9, 11]`
   c. `[1, 3, 5, 9, 11]`
   d. `[1, 3, 5]`

6. What is the value of lst1 after the following line of code is run (use the original lst1)?

```
lst1.insert(2, 4)
```

   a. `[1, 3, 5, 7, 2, 9, 11]`
   b. `[1, 3, 2, 5, 7, 9, 11]`
   c. `[1, 3, 4, 5, 7, 9, 11]`
   d. `[1, 3, 5, 7, 4, 9, 11]`

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7. What is displayed when the following program is run?

```
list = 6 * [0]
x = list[5]
print("Done")
```

a. [0,0,0,0,0,0]
b. 0
c. "Done"
d. An error occurs.

8. What would be displayed by the following code?

```
list1 = [1, 3]
list2 = list1
list1[0] = 4
print(list2)
```

a. [1, 3]
b. [4, 3]
c. [1, 4]
d. [1, 3, 4]

9. What will be displayed by the following code?

```
myList = [1, 2, 3, 4, 5, 6]
for i in range(0, len(myList)-1):
    myList[i] = myList[i+1]
print(myList)
```

a. [2, 3, 4, 5, 6, 1]
b. [6, 1, 2, 3, 4, 5]
c. [2, 3, 4, 5, 6, 6]
d. [1, 1, 2, 3, 4, 5]

10. Which method would you use to remove an element from a specific index in a list?
    a. `del` statement
    b. `remove` method
    c. `index` method
    d. `slice` method

11. Assume `x = [[1, 2], [3, 4, 5], [5, 6, 5, 9]]`, what are `len(x[0])`, `len(x[1])`, and `len(x[2])`?
    a. 2, 3, and 3
    b. 2, 3, and 4
    c. 3, 3, and 3
    d. 1, 2, and 3

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12. What will be displayed by the following code?

```
matrix = [[1, 2, 3, 4],
          [4, 5, 6, 7],
          [8, 9, 10, 11],
          [12, 13, 14, 15]]

for i in range(0, len(matrix)):
    print(matrix[i][2], end = " ")
```

a. 1 2 3 4
b. 4 5 6 7
c. 1 4 8 12
d. 2 5 9 13
e. 3 6 10 14

13. What is 01101_2 in decimal?

14. What is 29_{10} in binary?

15. What is the value of the variable `string1` after the execution of the following code?

```
string1 = 'Hello'
string1 += ' world'
```

16. What would be the value of the variable `list1` after the execution of the following code?

```
list1 = [2, 4, 6, 8, 10]
list1[3] = 1
```

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17. What will be displayed by the following program?

```
values = [[3, 24, 1, 19], [33, 5, 9, 2]]

v = values[0][0]
r = 0
c = 0
for row in range(0, len(values)):
    for column in range(0, len(values[row])):
        if v > values[row][column]:
            v = values[row][column]
            r = row
            c = column

print(v, r, c)
```

18. What will be displayed by the following code?

```
m = [[1, 2, 3], [4, 5, 6], [7, 8, 9], [10, 11, 12]]
print(m[2][1])
```

19. What will be displayed by the following code?

```
m = [[1, 2, 3], [4, 5, 6], [7, 8, 9], [10, 11, 12]]

for x in range(len(m)):
    print(x)
```

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20. Write a function called **getClickRowCol** that takes in a parameter called **pixels** that corresponds to the number of pixels per grid size there are for both the row and columns, and the function waits for a click and then returns the row and column of the click location. (For example, if pixels was equal to 100 and x = 270 and y = 112, then row = 1 and column = 2.)

21. Write a function called **`remove_odds`** that takes in a list of numbers (**L**) and returns the list with all the odd numbers removed. You may choose to modify **L** itself, or create a new list and return that.

    Example: `remove_odds([1, 2, 3, 4, 5, 6]) returns [2, 4, 6]`

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22. Write a function **`paired_sums`** that takes in a list and returns a list of the sums of consecutive pairs of values in the list.

    Example: `paired_sums([2, 3, 5, 1, 6]) returns [5, 8, 6, 7]`

23. Write a function called **`count_nums`** that takes in a list of integers and returns a list containing the counts of each number in the list from 0 to 9. You can assume that all values in the list are between 0 and 9.

    Hint: You should create a new list called counts that has all 0s and is of length 10. Then if you encounter a 5 in the list, `counts[5] += 1.`

    Example:
    ```
    count_nums ([4, 3, 6, 2, 7, 9, 2, 9, 0, 0, 2, 6, 6])
            returns [2, 0, 3, 1, 1, 0, 3, 1, 0, 2]
    ```

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24. Write a function called **max_sum_column** that takes in a 2-D list and returns the index and sum of the column with the maximum sum.

    Example: `max_sum_column([[5, 2, 8, 4], [-9, 0, 4, 1], [5, 6, 4, 8]])`
    `returns 2, 16`

25. Write a function called **print_largest_in_row** that prints the largest number in each row of a matrix.

    Example: `print_largest_in_row([[5, 2, 8, 4], [-9, 10, 4, 1], [5, 6, 4, 7]])`
    `prints 8, 10, 7`