CS 110
Midterm Exam

Instructions: This exam is governed by the **Emory Honor Code**. This exam is closed book and closed notes.

Show all of your work for full credit on each problem.

Name:_____

Student ID#:_____

I understand and will adhere to the Emory Honor Code.

Signature:_____

Problem 1: (5 pts)
What will be the output of the following code:

```
x = 35
if x % 3 == 0:
  print("A")
elif x % 3 == 1:
  print("B")
else:
  print("C")
```

- ◯ A
- ◯ B
- ◯ C
- ◯ Error

Problem 2: (5 pts)
How many bits are there in a byte?

- ◯ 4
- ◯ 8
- ◯ 10
- ◯ 16

Problem 3: (5 pts)
Which of the following variable names are not valid in Python

- ◯ `first_name`
- ◯ `lastNmae`
- ◯ `_middleName`
- ◯ `3rdName`

Problem 4: (8 pts)
What is the decimal value of the 8-bit positive integer 10101100?

Answer:

Problem 5: (8 pts)
What is the binary representation, using 8 bits, of the decimal number 77?

Answer:

Problem 6: (10 pts)

Find and correct the errors in the code, if there are any, and determine the value of result that is printed.

```
def calculate_area(radius)
    pi = 3.14
    area = pi * radius ** 2
    return area

circle_radius = 5
result = calculate_area(circle_radius)
print("The area of the circle is: " result)
```

result = ____

Problem 7: (16 pts)

What are the values of the following variables, when each of the following statements are executed?

(a) (4 pts) `first = 25 + 14 // 3 * 7`

first = ____

(b) (4 pts) `second = 25 + 14 % 3 * 7`

second = ____

(c) (4 pts) `third = 10 + 5 * 1.1`

third = ____

(d) (4 pts) `fourth = '5' + '11' + '7'`

fourth = ____

Problem 8: (12 pts)

What does the Python code segment print?

```
total = 0
counter = 1

while counter <= 5:
    if counter % 2 == 0:
        total += counter
    else:
        total -= counter
    counter += 1

print("The final value of 'total' is:", total)
```

print:

Problem 9: (16 pts)

For the following program:

```
def func(s1):
    n = len(s1) // 2  # Change the calculation of the middle index
    s2 = ''
    while (n < len(s1)):
        s2 = s2 + s1[n]
        n = n + 1
    return s2

x = input("Please enter a word: ")
y = func(x)

# Provide an input for x so that the program prints "Yes"
if (x == y):
    print("Yes")
else:
    print("No")
```

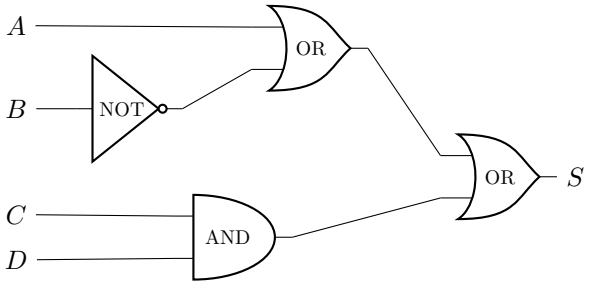
(a) (8 pts) Provide an input value that results in the program printing "Yes".

Input:

(b) (8 pts) Provide an input value that results in the program printing "No".

Input:

Problem 10: (15 pts)



(a) (5 pts) Give the ouput for inputs A = 0, B = 1, C = 1, D = 0

S = ____

(b) (5 pts) Give the ouput for inputs A = 0, B = 1, C = 1, D = 1

S = ____

(c) (5 pts) Give the ouput for inputs A = 0, B = 0, C = 0, D = 0

S = ____