

IT 211 – Midterm Exam

February 6, 2019

Name _____

Part A: Multiple Choice Questions. Circle the correct response for each question. Give an optional reason for each question. If you circle the correct response, the reason will not be considered. 5 points each.

1. Which standalone method is used to convert a numeric value into a string?

- a. `str` b. `to_s` c. `to_string` d. `toString`

2. What is the meaning of `**` in this expression?

```
actual_mass = rest_mass / (1 - (v / C) ** 2) ** 0.5
```

- a. concatenation b. exponentiation c. multiplication d. repetition

3. What is the output?

```
print(20 // 7)
```

- a. 2 b. 2.857 c. 6.000 d. 207

4. Which statements simulate the sum of the rolls of a pair of random dice. Each die roll produces an integer between 1 and 6.

a. `from random import randrange`

```
sum = randrange(0, 6) + randrange(0, 6) + 1
```

b. `from random import randrange`

```
sum = randrange(1, 7) + randrange(1, 7)
```

c. `from random import randrange`

```
sum = randrange(1, 12) + 1
```

d. `from random import randrange`

```
sum = randrange(1, 13)
```

5. What is the output?

```
value = '1289'
```

```
print(value)
```

- a. 1289 b. 1,289 c. '1289' d. "1289"

6. Which of the following scripts has its statements in the correct order for printing the surface area of a rectangular box, given its length (l), width (w), and height (h)?

a.

```
area = 2 * (l * w + l * h + w * h)
l = float(input("Enter length of box: "))
w = float(input("Enter width of box: "))
h = float(input("Enter height of box: "))
print("Surface area of box:", area)
```

b.

```
area = 2 * (l * w + l * h + w * h)
print("Surface area of box:", area)
l = float(input("Enter length of box: "))
w = float(input("Enter width of box: "))
h = float(input("Enter height of box: "))
```

c.

```
l = float(input("Enter length of box: "))
w = float(input("Enter width of box: "))
h = float(input("Enter height of box: "))
print("Surface area of box:", area)
area = 2 * (l * w + l * h + w * h)
```

d.

```
l = float(input("Enter length of box:"))
w = float(input("Enter width of box:"))
h = float(input("Enter height of box:"))
area = 2 * (l * w + l * h + w * h)
print("Surface area of box:", area)
```

7. How many total stars are printed?

```
for i in range(0, 350):
    print("*", end="")
print("***", end="")
for i in range(0, 200):
    print("*", end="")
    print("*", end="")
```

a. 550

b. 552

c. 752

d. 70,002

8. What is the output?

```
state = "opportunity"
print(state.replace("t", "**"))
```

a. tt

b. **

c. oppor*uni*y

d. oport*unit*y

9. If the file object `fout` is defined by
`fout = open("log.txt", "w")`
 which statement writes the string `Hello` to the output file `log.txt`.
- a. `fout.print("Hello")` b. `fout.write("Hello")`
 c. `fout.writeline("Hello")` d. `print(fout, "Hello")`
10. What is structured programming? It is a programming style where
- a. all lines of a script are properly indented.
 b. all variables are properly initialized.
 c. the script has comments explaining how it functions.
 d. the script only uses sequence (no go to statements), if statements, and while loops.

Part B. Predict the Output. Complete the variable trace table and predict the output. 10 points each. Work both problems 1 and 2. Recall that `//` means integer division.

1. `a = 1`
`b = 4`
`b = 3 * a + 2 * b`
`a = 5 * a + b`
`b = b - 2`
`a = a // 2`
`print(b, a, sep=";")`

Output:

a	b

2. `m = 2`
`n = 100`
`for i in range(1, 4):`
 `n = n // 3`
 `m = m + 5`
 `print(m, n)`
`print(m + n)`

Output:

i	n	m

Part C. Correct Errors in Python Scripts. Correct the errors in source code for one of the `stats.py` or `lotto.py` scripts on Pages 4 or 5. Mark your corrections directly on the source code; do not recopy. Correcting a pair of (), [], { }, " ", or ' ' only counts as one error. **Important:** only correct the errors in one of the scripts (15 points) in this section. Correct both scripts for extra credit if you have time (5 additional points).

1. The script `writeletters.py` writes letters addressed to each name in the input file `names.txt`. Find the errors; there are about 10 errors. You are only required to correct one of the scripts in Part C. Correct both scripts for extra credit if you have time. Number the errors you find from 1 to 10 to make them easier to see.

Source code file: `writeletters.py`

```

date = "December 18, 2019"
body = 'Season's greetings to you and yours.'
finish = "Sincerely,\nMargaret"
fin = file_open("names.txt", r)
name = fin.input( )
While name != ""
    name == name.strip( )
    greeting = "Dear " name + ","
    filename = name.lower_case( ) + ".txt"
    fout = open(filename, "w")
    fout.write("{date}\n{greeting}\n{body}\n{finish}/n")
    name = fin.readline( )
    fout.close
    fin.close( )

```

The first 5 lines of the input file `names.txt`:

```

Uncle Larry
Aunt Agnes
Mom
Dad
Carl

```

2. The script `magic8ball.py` generates simulated answers to questions. It repeatedly answers questions while the user answers "Yes" to the prompt "Do you want to ask another question?" Correct the errors; there are at least 10 errors. You are only required to correct one of the scripts in Part C. Correct both scripts for extra credit if you have time. Number the errors you find from 1 to 10 to make them easier to see.

```
# Source code file: magic8ball.py

import random

more = "yes"
while more = "yes"
    ans_num = randrange(0, 6)
    ans = ""

    if ans_num == 0:
        ans = "Yes -- definitely"

    elif ans_num == 1:
        ans = Most likely

    elif ans_num == 2
        ans = "Reply hazy, try again"

    elif ans_num == 3:
        ans == "Cannot predict now"

    elif ans_num == 4:
        ans = "Don't count on it"

    else:
        ans = "Very doubtful"

write "Magic eight ball answer: {ans}"
more = input("Would you like to ask another question? ")
```