

Introduction to Computer Programming  
CSCI-UA 2

Midterm Review Session 1

## Question 1

Analyze the code below and identify any problems or issues that might exist. Offer suggestions on how to revise the code to prevent these errors from occurring and/or rewrite the code so that it functions correctly.

```
rate = str(input("How much do you make per hour? "))
hours = input("How many hours did you work this week? ")

if hours < 40:
    pay = rate * hours
if hours > 40
    pay = rate * 40
    ot_pay = (hours - 40) ** (rate * 1.5)

print("Your total pay is, pay + ot_pay")
```

## Question 2

When the following program is run, what will be printed to the screen?

```
a = 5
b = 6
c = 20
d = 24

if a < b and b * 2 < c:

    print("Python Case 1")
    print("A", "B", "C")

    if a * 2 == c:
        print(a * 2, a * 2, a * 2)
    elif a * 3 == c:
        print(a * 3, a * 3, a * 3)
    elif a * 4 == c:
        print(a * 4, a * 4, a * 4)
    else:
        print('?', '?', '?')

else:

    print("Python Case 2")
    print("a", "b", "c")

    if b * 2 == d:
        print(b * 2, b * 2, b * 2)
    elif b * 3 == d:
        print(b * 3, b * 3, b * 3)
    elif b * 4 == d:
        print(b * 4, b * 4, b * 4)
    else:
        print('?', '?', '?')
```

### Question 3

Trace the output of the following programs.

```
x = 0
```

```
while x < 10:  
    print(x)  
    x += 2
```

---

```
x = 0  
y = 10
```

```
while x < y:  
    print(x, y)  
    x += 1  
    y -= 1
```

---

```
x = 5  
y = 10
```

```
while x > y:  
    print("Looping!")  
    x += 1
```

---

```
i = 0  
language = "Python"
```

```
while len(language) > i:  
    print(language)  
    i += 2
```

## Question 4

Part A: Ask the user to enter a positive integer. Only accept positive integers—if the user supplies a negative integer or zero you should prompt them again.

Part B: Using a while loop, extend your program to print all numbers between 1 and the number the user supplied as follows.

Enter a positive integer: 7

1 2 3 4 5 6 7

Part C: Revise your while loop program so that it only prints *even* numbers between 1 and the number supplied.

Enter a positive integer: 7

2 4 6

## Question 5

Trace the output of the following programs.

```
for x in range(10, 15):  
    print(x)
```

---

```
for x in range(10, 5):  
    print(x)
```

---

```
for x in range(5, 7):  
    counter = 0  
    while counter < 3:  
        print(x, ":", counter)  
        counter += 1
```

## Question 6

What will print when the following program is run?

```
c = 0

for z in range(2):
    for x in 'ab':
        for y in 'pq':
            print(z, x, y, c)
            c += 1

print(c)
```

## Question 7

You've been given the following string which represents a series of 6-sided die rolls.

```
rolls = "3,1,6,4,1,4,1,3,1,1,6,4,5,6,6,3,3,5,2,4,6,5,5,4,  
5,5,1,5,1,4,3,1,4,1,3,1,3,3,5,3,3,5,2,4,6,4,6,6,5,1,2,6,5,  
4,5,4,1,6,4,2,1,6,4,4,5,5,4,2,4,5,5,4,3,4,4,2,2,2,3,6,6,6,  
2,3,2,4,3,1,5,3,4,4,4,3,2,3,5,6,4,6,4,4,3,1,2,4,3,3,5,6,5,  
1,5,4,1,6,6,2,4,6"
```

Write a program that analyzes the rolls and computes the following:

- The total number of rolls
- The total value of all rolls (i.e. 1 + 5 + 2 + 3 etc.)
- The average roll

Print each of these values to the screen.