EXAM 1 REVIEW

Question 1

- Write the Python expressions to calculate:

  - $\dfrac{4+3*2^{n-2}}{10}$

    - (4 + 3 * 2 ** (n – 2))/10

  - the sum of the cubes of integers *x* and *y*

    - *x ** 3 + y ** 3*

  - the number of seconds in 4 hours, 14 minutes, and 32 seconds

    - (4 * 60 ** 2) + (14 * 60) + 32

Question 2

- Write the Python boolean expressions for these conditions:
  - *x* is a factor of *y* (*x* divides evenly into *y*)
    - y % x == 0

  - *age* is at least 18 and *state* equals Hawaii
    - *age > = 18 and state == 'Hawaii'*

  - the string contained in variable *name* contains a *'z'*
    - *'z' in name*

Question 3

- Consider this code:

```
if x % 2 == 1:
    if x**3 != 27:
        x = x + 4
    else:
        x = x / 1.5
else:
    if x <= 10:
        x = x * 2
    else:
        x = x - 2
print(x)
```

- What does this code print if **x == 8**? 16
- What does this code print if **x == 5**?   9

Question 4

- Consider this code:

```
x = input('Enter a string: ')
y = 0
for i in x:
    print(y, i)
    y += 1
```

- What does this code print the user enters "Felix"?

0 F
1 e
2 l
3 i
4 x

Question 5

- Write the Python loop to get the sum of all the odd numbers between 1 and n, for an input value of n. For example, the sum of the odds between 1 and 7 is:
  1 + 3 + 5 + 7 = 16

  … or if n == 11 or n = 12, the output would be 36 since:
   1 + 3 + 5 + 7 + 9 + 11 = 36

```
sum = 0
for num in range (1, n+1):
        if num % 2 == 1:
                sum += num
```

Question 6

• Consider this code:

```
x = input('Enter a string: ')
y = 0
for i in x:
    if i == 'a':
        y += 1
print(y)
```

Write a while loop that does exactly the same thing as the for loop

```
x = input('Enter a string: ')
y, i = 0, 0
while x:
    if x[i] == 'a':
        y += 1
    x = x[1:]
print(y)
```

Question 7

• Consider the following code segment:

```
myList = []
myList.append("P")
myList.append("Q")
myList.append("R")
myList.insert(2, "s")
myList.insert(2, "T")
myList.append("u")
print(myList)
```

• What is printed as a result of executing the code segment?
```
(a) [P, Q, R, s, T, u]
(b) [P, Q, s, T, R, u]
(c) [P, Q, R, T, s, u]
(d) [P, T, s, Q, R, u]
(e) [P, Q, T, s, R, u]
```