

## EXERCISE 1: ELEMENTARY PROGRAMMING

1. Suppose that  $a$  and  $b$  are integers,  $a = 1$ ,  $b = 0$ . What does the following sequence of statements do? What are values of variables  $a$ ,  $b$ ,  $t$  and explain outcome.

$t = a$

$b = t$

$a = b$

2. Which of the following variable names is valid in Python?

a. two\_apple

b. 2\_apple

c. for

d. ab'c

3. What are the results of the following expressions?

a.  $42 / 5$

b.  $42 // 5$

c.  $42 \% 5$

d.  $45 + 4 * 4 - 2$

e.  $4 + 6 / 3 * 2 - 2 + 7 \% 3$

f.  $5 ** 2$

g.  $(b > 15)$  and  $(c < 0$  or  $a > 0)$ , where  $a = 5$ ,  $b = 10$ ,  $c = -6$

4. Add parentheses to the following expression so that it evaluates to 0.

$8 - 3 * 2 - 1 + 1$

5. What are the results of the following program?

```
1. a = 5
2. b = 8
3. a += b
4. b = a - b
5. a -= b
6. print(a)
7. print(b)
```

6. What are the results of the following program?

```
1. n = 1703
2. a = n%10
3. b = (n//10)%10
4. c = (n//100)%10
5. d = (n//1000)%10
6. s = a + b + c + d
7. print(s)
```

7. What are the results of the following program?

```
1. n = 294
2. a = n % 10
3. b = (n // 10) % 10
4. c = (n // 100) % 10
5. m = a * 100 + b * 10 + c
6. print(m)
```

8. What will be printed after each of the following code segments?

- a. `x = "computer science"`  
`print("sci" not in x)`
- b. `x = [ 2.3, "dog", 5] #list`  
`print(5 in x)`
- c. `a = 8 == 8.1`  
`b = 2 >= 5`  
`print( a or b)`
- d. `a = 8 > 6`  
`b = 0 < 5`  
`print( a and b)`

9. What value does each of the following expressions evaluate to?

- a. `'Computer' + ' Science'`
- b. `'Darwin\'s'`
- c. `'H2O' * 3`
- d. `'CO2' * 0`

10. Which of the following expressions results in Syntax Errors?
- a. `8 = people`
  - b. `(((4 ** 3)))`
  - c. `6 * -----8`
  - d. `4 += 7 / 2`
11. What is wrong in the following code? How do you fix it?
- ```
title = "Chapter "+ 1
```