# COMP1021 Spring 2019 Midterm Solution

Q1) **(6 marks)** **5**

```
You are really crazy!!
Because you have so many boyfriends who know python
I will do some magic and take some away!
5
```

Q2) **(6 marks)** **6**

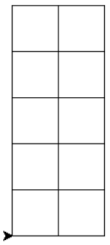
```
hello
hello
hello
hello
hello
hello
```

Q3) **(6 marks)** **14**

10 small squares

4 big squares

Total = 14 squares



Q4) **(8 marks)** 4 marks for each answer:

HKUST is the University of **`Stick`** and **`Tshirts`**

*Note that* `Sticks` *is* ***wrong***

We will ignore case for this question e.g. **`stick`** and **`tshirts`** is OK

Q5) **(7 marks)** **D** the line would be replaced with `turtle.goto(0, 0)` *or* `turtle.home()`, but the student doesn't have to write the new line

***or*** **C** the line would be replaced with `turtle.goto(0, 0)` *or* `turtle.home()`, but the student doesn't have to write the new line

Q6) **(10 marks)** 5 marks for each answer:

```
...
diameter=500
for x in range(10):
    turtle.color( "grey" + str(x*10) )
    turtle.dot(diameter)
    diameter= diameter - 50
```

The value 50 can be any number in the range **47 to 53 inclusive**

***or*** **`500/10`** ***or*** **`(500/10)`**

Q7) **(6 marks)** **8333** ***could be written like this:*** **8,333**

Q8) **(15 marks)** Part 1 = **old phone** Part 2 = **can** Part 3 = **go** Part 4 = **on** Part 5 = **sale**

3 marks for each answer. There's no partial marks.

(It doesn't matter whether the answer uses speech marks or not).

Q9) **(12 marks)** **w w s** ***or*** **s w w** ***or*** **w s w**

There's no partial marks. The answer must be one of the above 3 answers.

(It doesn't matter whether the letters are written with speech marks or not).

## Q10) **(8 marks)**

```
TotalMacs=0
TotalStudents=0
for Section, Information in Computer.items():
    TotalMacs= TotalMacs + Information[0]
    TotalStudents=TotalStudents+Information[0]
    TotalStudents=TotalStudents+Information[1]
    TotalStudents=TotalStudents+Information[2]
AverageMac= (TotalMacs/TotalStudents)*100 or TotalMacs/TotalStudents*100
print("Final result:", AverageMac, "% of COMP1021 students who voted use Macs")
```

*4 marks*

*4 marks*

## Q11) **(16 marks)**

```
allTurtles=[]
# First, let's handle the white keys
startx=-350
x=startx
y=0
xDistanceBetweenKeys=58
WhiteKeyHeightMultiplier=8
KeyWidthMultiplier=3
KeyOutlineWidth=3
for _ in range( 14 ):
    t=turtle.Turtle()
    t.shape("square")
    t.color("black", "white")
    t.shapesize(WhiteKeyHeightMultiplier, KeyWidthMultiplier, KeyOutlineWidth)
    t.up()
    t.goto(x, y)
    t.down()
    allTurtles.append(t)
    x=x + xDistanceBetweenKeys
# Next, let's handle the black keys
x=startx + (xDistanceBetweenKeys * 0.5 )
y=y + 23
for count in range(14):
    ThisOne=count % 7
    if ThisOne==0 or ThisOne==1 \
       or ThisOne==3 or ThisOne==4 or ThisOne== 5 :
        t=turtle.Turtle()
        t.shape("square")
        t.color("white", "black")
        t.shapesize(WhiteKeyHeightMultiplier * .75, KeyWidthMultiplier, KeyOutlineWidth)
        t.up()
        t.goto(x, y)
        t.down()
        allTurtles.append(t)
    x=x + xDistanceBetweenKeys
```

*4 marks*

*4 marks*

*4 marks*