

COMP1021 Spring 2018 Final Exam Solution

Q1) 5 marks **A**

Indexes 8 and -7 are the same, both work for this question. Indexes 9 and -6 are the same, both work for this question. Using 7 will NOT show the item at index 7, so the answer is A.

Q2) 5 marks **B**

Operator precedence for this question: ((not True) and True) or (True and False)

Q3) 5 marks **30**

Another way to think about this task is: the remaining cash amount is the remainder of original cash divided by unit price (150 % 40).

Q4) 8 marks
part1: **the**
part2: **singing**
part3: **is**
part4: **insane**

4 * 2 marks for each blank

Using speech marks is OK,
e.g. "cat" 'cat' and cat are all OK.

Q5) 6 marks **C**

Only the answer with `int(x*2.55)` generates the numbers 0 to 255, as x takes a value from 0 to 100.

Q6) 8 marks 4 * 2 marks for each blank

```
points = 0
for letter in car:
    if letter=="8" or letter=='8':
        points=points+1
    elif letter=="4" or letter=='4':
        points=points-1
```

This works BUT is not the simplest so NOT OK:

```
for letter in range(len(car)):
    if car[letter]=="8":
        points=points+1
    elif car[letter]=="4":
        points=points-1
```

Q7) 6 marks part1: **B** part2: **C** part3: **D**

3 * 2 marks for each blank

Q8) 6 marks **B**

The turtle must leave the origin (0,0) before drawing so that's one reason why A and C are wrong. In the target result every arc drawn are of 90 degrees, so that's one reason why D is not the answer.

Q9) 6 marks **A**

The recursion creates four squares at the four corners at every depth.

Q10) 6 marks **4**

Just one line needs to be altered to double the speed of music. Possible ways to alter lines 3/5/8/9:

Line 3: [0.0, 64], [0.15, 62], [0.3, 60], . . .

Line 5: if i+1<len(music): note_information = \
[(music[i+1][0]-music[i][0])/2+music[i][0], music[i][1]]

Line 8: next_note_information = \
[music[i+1][0]-(music[i+1][0]-music[i][0])/2, music[i+1]]

Line 9: time.sleep(next_note_information[0]/2 - note_information[0]/2)

Line 4 cannot be altered to make the music twice as fast, therefore the answer is line 4.

Q11) 6 marks part1: **A** part2: **A** part3: **C**

3 * 2 marks for each blank

Q12) 8 marks 8 * 1 mark for each blank

```
for music in [0, 10, 25]:  
    for audio in [0, 10, 25]:  
        for image in [0, 10, 25]:  
            for video in [0, 10, 25]:  
                thislist=[music,audio,image,video]  
                if thislist.count(0)== 1 and \  
                    thislist.count(25)== 1 and \  
                    thislist.count(10)== 2 and \  
                        sum(thislist)==45: # sum() adds up everything  
                    text=str(music) + "\t" + str(audio) + "\t" + \  
                        str(image) + "\t" + str(video)  
                    print(text)
```

Q13) 6 marks The name of the location is: **coffee shop**

Any answer which mentions *coffee shop* is OK. If the student uses speech marks ('coffee shop' or "coffee shop") it is OK.

You are outside the lecture theatres
Which way? (n/s/e/w) s
You are in a car park
Which way? (n/s/e/w) e
You have found a secret tunnel!
You are outside the lecture theatres
Which way? (n/s/e/w) e
You are in the coffee shop

Q14) 6 marks **D**

The lab had 8 turtles for drawing, for this question only 4 turtles in total are used for drawing.

Q15) 6 marks **G**

Q16) 7 marks (3 marks) Part A: Line **9**

(4 marks) Part B:

```
thisFilename = "ustr" + str(r) + "c" + str(c) + ".gif"
```

or thisFilename = "ust" + "r" + str(r) + "c" + str(c) + ".gif"

In Python, " " and ' ' are the same. The line of code must be **clear and totally correct** to get the 4 marks.