

Question 1 (3 x 6 = 18 marks)

Evaluate the following terms. If we type them into the shell, what will be the output or echo from IDLE? If any of these causes an error, please write “error” instead. The type of your answer is important, e.g. the integer 5 is different from ‘5’ or 5.0. In all the followings, we assume `s = 'abcdef'`.

Evaluate the Following:	Answer:
<code>s[2:9]</code>	'cdef'
<code>s[9]</code>	Error
<code>10 + 4 % 2 * 1</code>	10
<code>not (5 > 6) or (1 < 2)</code>	True
<code>int('05'*3)</code>	50505
<code>s[6/3]</code>	Error (Index not int)

Question 2 (6 x 5 = 30 marks)

Each row of the table is a separate program/file. What is the output of each of them when we run it? If the code produces errors or runs into infinite loops, please state ‘error’ or ‘infinite loop’ respectively.

Code	Output
<pre>i = 1 while i < 10: if (i%5 == 0): break i += 1 print(i)</pre>	5
<pre>def foo(s): output = '' for c in s: output = c + output + c return output print(foo(' no evil star'))</pre>	'rats live on no evil star'
<pre>sum = 0 for i in range(0,10): sum = sum + i i = i + 5 print(sum)</pre>	45
<pre>def into(aStg, acc): if aStg: return into(aStg[1:],acc+1)+str(acc) else: return str(acc) print(into('abcd',0))</pre>	43210

Question 3 (52 marks)

Write a simple program for the game paper-scissor-rock, in which the integers 1,2 and 3 represent paper, scissor and rock respectively. Two players will input their choices and your program needs to decide who win. Here are some sample outputs:

```
>>> psr()
1:paper, 2:scissor, 3: rock
Player 1 input:3
Player 2 input:3
Tie!
>>> psr()
1:paper, 2:scissor, 3: rock
Player 1 input:3
Player 2 input:2
Player 1 win!
```

```
>>> psr()
1:paper, 2:scissor, 3: rock
Player 1 input:1
Player 2 input:2
Player 2 win!
>>> psr()
1:paper, 2:scissor, 3: rock
Player 1 input:1
Player 2 input:3
Player 1 win!
```

You can assume the players obey the rules and only input the integers 1,2 or 3. Note: **Indentations are important**. You will only gain full mark only if your *additional* code ≤ 8 lines and each line has ≤ 25 characters without counting spaces.

```
def psr():
    print('1:paper, 2:scissor, 3: rock')
    input1 = int(input('Player 1 input:'))
    input2 = int(input('Player 2 input:'))
```

```
    if (input1 - input2) % 3 == 1:
        print('Player 1 win!')
    elif (input1 - input2) % 3 == 2:
        print('Player 2 win!')
    else:
        print('Tie!')
```

or even shorter:

```
    win = (input1 - input2) % 3
    print(f'Player {win} win!' if win else 'Tie!')
```