計算機程式 **110** 學年度第 **1** 學期小考 **4** 試題 **A**

系級：____學號：_____ 姓名：

1. The output of test1():

   (1) {'M': 1, _____}

   (2) dict_keys(['M', _____])

   (3) dict_values([1, _____])

```
def word_count(s):
    words=s.split(' ')
    d = {}
    for word in words:
      d[word] = d.get(word, 0) + 1
    return d
def test1():
    a=word_count('M Y P Y P Y H H')
    print(a)
    k=a.keys()
    v=a.values()
    print(k)
    print(v)
```

2. (1)_____

   (2) _____(3)_____

   Apply **lambda** to define a function that convert characters of string from uppercase letters to lowercase letters, or from lowercase letters to uppercase letters.

Iuput	Output
eAsYfOReNCE	EaSyForEnce

```
def test2(x):
  func=lambda s: s.lower() if _____  #(1)
  a = list(___(func, x))             #(2)
  b="".join(___)                     #(3)
  print(b)
```

3. The output of test3(): (1) _____

   (2) _____(3) _____

```
def multiple2(x):
  return x*x
def adder(x,y,z):
  return x+y+z
def test3():
  x1 = [1,2,3,4]
  for x in map(multiple2,x1):
    print(x, end=' ')
  print()
  print([multiple2(x) for x in x1])
  x2 = [1,3,5,7]
  x3 = [20,40,80]
  print([adder(x,y,z) for x,y,z in zip(x1,x2,x3)])
```

4. The output of test4('successISgood'): (1) _____

   (2) dict_values([3, 1, 2, 1, 1, _____])

```
def test4(x):
  d = {}
  for char in x:
    d[char]=x.count(char)
  print(d['s'])
  print(d.values())
```

5. The output of test5(7): (1) _____ (2) _____

```
import math
def test5(x):
  r = range(1,x)
  a = list(filter(lambda x:x%3==0,r))
  print(a)
  a = list(filter(lambda x:math.sqrt(x)%1==0, r))
  print(a)
```

6. The output of test6(): (1) _____(2) _____

```
import functools as ft
def test6():
  x = [3, 2, 6, 2, 5]
  a=ft.reduce(lambda s,e:s+e, x, 0)
  print(a)
  a = ft.reduce(lambda x, y: x*y, x, 2)
print (a)
```

7. The output of test7(): (1) [_____]

   (2) [_____]

```
def test7():
    a = [1,2,3]
    b = [4,6]
    c = [7,8, 9, 11,12]
    zipped = zip(a,b)
    print([x for x in zipped])     #(1)
    print([x for x in zip(a,c)])   #(2)
```

8. To count all space,alphabet, digits, and special symbols. The output of test8("I$$!# y 26at^& i6Qe"):

   (1) Chars= ____ (2) Digits= _____ (3) Symbol= ____

```
def test8(inputString):
  spaceCount = 0
  charCount = 0
  digitCount = 0
  symbolCount = 1
  for char in inputString:
    if char.isspace():
      spaceCount+=2
    elif char.isalpha():
      charCount+=1
    elif char.isnumeric():
      digitCount+=1
    else:
      symbolCount+=1
  print("Chars=",charCount)       #(1)
  print("Digits=",digitCount)     #(2)
  print("Symbol=",symbolCount)    #(3)
```

9. The output of test9(): (1) _____

(2) _____ (3) _____

```
def test9():
    s="egg"
    s1=s.rjust(7,'1')
    s2=s.ljust(5,'@')
    s3=s.center(7,'4')
    print(s1, "ma")     #(1)
    print(s2, "ha")     #(2)
    print(s3, "ok")     #(3)
```

10. The output of test10('pineapple'):

(1) _____

(2)_____ (3) _____(4) _____

```
def test10(s):
    s1 = set(['a','p','i'])
    s2 = set(['y','a'])
    for char in s:
        if char not in s1:
            s1.add(char)
        else:
            s2.add(char)
    print(s1)          #(1)
    print(s1-s2)       #(2)
    print(s1^s2)       #(3)
    print(s1&s2)       #(4)
```

11. (1) _____(2) _____(3)_____

The output is 'peKOra hahAHaha'

```
def test11(s1, s2):
    index = int(len(s1)/____)              #(1)
    s = s1[:index]+ ____ +s1[_____: ]  #(2)(3)
    print(s, end=' ')
test11('pera', 'KO')
test11('hahaha', 'AH')
```

12. The output of test12(5): (1) _____

(2) _____ (3) _____

```
import numpy as np
def test12(x):
    a = np.arange(1, x*x+1).reshape(x, x)
    print(a[2:4, 0])        #(1)
    print(a[1:3:,::2])      #(2)
    print(a[:, 3])          #(3)
```

13. The output of test13(3): (1) _____

(2) _____ (3) _____ (4) _____

```
import numpy as np
def test13(x):
    d = [[i]*x for i in range(x)]
    a = np.array(d)
    print(a[2])                #(1)
    for i in range(x):
      print((a[:,i]==1).sum(), end='') #(2)
    print('\n', np.sum(a,axis = 0))    #(3)
    print(np.sum(a))                   #(4)
```

14. The output of test14(3): (1) _____

(2) _____ (3) _____ (4) _____

```
import numpy as np
def test14(x):
    a= np.linspace(0,8,9).reshape([3,x])
    print(a[1:2,2:3])
    print(np.sum(a,axis = 0))
    print(np.sum(a,axis = 1))
    print(np.sum(a))
```

15. The output of test15 is '4 314.15': (1) _____

(2) _____ (3) _____

```
def computeArea(cf, p):
    return _____ #1
def square(data):
    return (data*data)
def circle(data):
    return (3.1415*data*data)
def test15():
    print(computeArea(_____, 2),end=' ') #(2)
    print(computeArea(_____, 10)) #(3)
```

16. The output of test16(): '{'n2': [1, 2, 3], 'n3': [1, 2, 5], 'n1': [2, 3, 4]}' (1) _____ (2) _____

```
def test16():
    num = {'n2': [2,3,1], 'n3': [5,1,2], 'n1': [3,2, 4]}
    sorted_dict = {x: ___(y) for x, y in num.____}    #(1, 2)
    print(sorted_dict)
```

17. The output of test17([21,10,5,39,1,16]) is 39 1

(1) _____ (2) _____

(3) _____ (4) _____

```
def test17(x):
    n=_____          #(1)
    m=_____          #(2)
    for i in range(len(x)):
        if _____ :      #(3)
            m=x[i]
        elif _____:     #(4)
            n=x[i]
    print(n,m)
```

18. 請簡要說明計算機程式設計課程獲得(至少 30 字)。