

1. (6 %) 執行以下之宣告後，請寫出下列各子陣列的內容。

A = [3.4 -0.54 1.21 1.38; 3.2 3.4 0.6 2.11; 0.6 1.1 -0.4 3.1];

(a) A(2:3,1:2) (b) A(:, end) (c) A(9) (d) A([1 3], [2 4])

(e) (2 %) B = reshape(A, [6, 2]), B(4, 1)

Hint: B = reshape(A,sz) reshapes A using the size vector, sz, to define size(B). For example, B = reshape(A, [2,3]) reshapes A into a 2-by-3 matrix. A and B have the same total number of elements.

答：

```
a =  
  
    3.2000    3.4000  
    0.6000    1.1000
```

```
b =  
  
    1.3800  
    2.1100  
    3.1000
```

```
c =  
  
   -0.4000
```

```
d =  
  
   -0.5400    1.3800  
    1.1000    3.1000
```

```
B =  
  
    3.4000    1.2100  
    3.2000    0.6000  
    0.6000   -0.4000  
   -0.5400    1.3800  
    3.4000    2.1100  
    1.1000    3.1000
```

```
e =  
  
   -0.5400
```

2. (5%) 以下為計算 $2 + 4 + 6 + \dots + 20$ 的程式碼，請問程式有無錯誤，如果有錯誤請標示出錯誤的地方，在相同架構下要如何修改才能正確執行？

Hint: mod: remainder after division; example: $b = \text{mod}(23,5) \rightarrow b = 3$

```
a = 0; sum = 0; limit = 20;
while ~a
    a = a + 1;
    if a >= limit
        break
    end
    if mod(a,2) = 0
        continue
    end
    sum = sum + a;
    fprintf('a = %f sum = %f\n', a, sum)    (註：這一行沒有錯誤)
end
```

答：

```
1 - clear all; clc;
2 - a = 0; sum = 0; limit = 20;
3 - b = 0;
4 - while ~b
5 -     a=a+1;
6 -     if a > limit
7 -         break
8 -     end
9 -     if mod(a,2) == 1
10 -        continue
11 -    end
12 -    sum=sum+a;
13 -    fprintf('a = %f sum = %f\n',a,sum)
14 - end
```

3. (6%) 執行以下之宣告後，請寫出下列各敘述式的結果。

$a = \begin{bmatrix} 3 & 5 \\ 2 & -3 \end{bmatrix}$; $b = \begin{bmatrix} -1 & 4 \\ 2 & 3 \end{bmatrix}$; (a) $a*b$ (b) $a.*b$ (c) $a.\backslash b$

答：

ans = (a)

7 27
-8 -1

ans = (b)

-3 20
4 -9

ans = (c)

-0.3333 0.8000
1.0000 -1.0000

4. (5 %) 請評估下列 MATLAB 敘述式的結果：

(a) $i=5$, $a=1+5i$, $b=1+5*i$

(b) $\text{xor}(17 - \pi > 15, \pi < 3)$

(c) $\sim \sim (35 / 17) == 1$

(d) $\text{true} \leq 3/2$

(e) $\text{value1} = 2$; $\text{value2} = [2 \ 1; 0 \ 1; 2 \ 3]$; $\text{value1} \ \& \ \text{value2}$

答：

```
a = (a)
1.0000 + 5.0000i
```

```
b =
26
```

```
ans = (b)
logical
0
```

```
ans = (c)
logical
1
```

```
ans = (d)
logical
1
```

```
ans = (e)
3x2 logical array
1 1
0 1
1 1
```

5. (6 %) 檢查以下 for 迴圈，寫出每個 for 迴圈執行了多少次：

(a) for ii = -12:-2:-7 (b) for jj = linspace(1,5,8):6 (c) for kk = [0 5 1; 3 3 2]

答：

```
>> ii = -12:-2:-7

ii =

    1x0 empty double row vector

>> jj = linspace(1,5,8):6

jj =

     1     2     3     4     5     6

>> kk = [0 5 1; 3 3 2]

kk =

     0     5     1
     3     3     2
```

(a) 0 次

(b) 6 次

(c) 3 次

6. (6 %) 令 $x=3:6$ ， $y=3:-1:0$ ，試求以下之結果。

(1) $x([1\ 3\ 4])+y(1:3)$ (2) $x*y'$

答：

```
ans = (1)

     6     7     7

ans = (2)

    22
```

7. (6 %) 下列 MATLAB 宣告式是否正確？ 如果不正確，請指出哪裡有誤，並改正錯誤。

```
temp = input('Input your temperature: ')
if temp <= 35.0
    display('Your temperature is too low')
elseif 35.0<temp<=37.2
    display('Your temperature is normal')
elseif 37.2<temp<38.9
    display('You have a fever')
else temp>38.9
    display('You are dangerous')
end
```

答：

```
1 - clear all; clc;
2 - temp = input('Input your temperature:')
3 - if temp <= 35.0
4 -     display('Your temperature is too low')
5 - elseif temp <= 37.2
6 -     display('Your temperature is normal')
7 - elseif temp < 38.9
8 -     display('You have a fever')
9 - else
10 -     display('You are dangerous')
11 - end
```