

CODING FOR FINANCIAL APPLICATIONS TEST 4 NOVEMBER 20TH, 2019

To pass the test you must answer correctly to at least 8 of the following 10 questions.
Time: 30 minutes.

Name: _____

1. Consider the following table

`stockData =`

15x7 table

Dates	BA	BARC	BRBY	RBS	RDSA	SVT			
-----	-----	-----	-----	-----	-----	-----			
24-Oct-2006	420	717	546.5	9369.4	1827	1445			
25-Oct-2006	416.75	712.5	557	9369.4	1842	1455			
...	
13-Nov-2006	419	706.5	556.25	9369.4	1914	1438			

Create a table named `fin` that contains the 3rd and 5th variables of `stockData`.

`>> fin = stockData(:, [3, 5])`

2. Suppose you have a 30x12 table called 'weatherData' indicating the rainfall, day by day, of each month of the year. What will be the size of `y` after the following command has been run?

`>> y = varfun(@max, weatherData)`

`>> size(y) = [1, 12]`

3. (Select all that apply) Which of the following are valid ways to store the contents of the variable `liborrate` (a 10x4 table) in a comma separated text file named 'libor.csv'?

a.

```
writetable(liborrate,'libor.csv');
```

b.

```
writetable(liborrate,libor.csv);
```

c.

```
libor = writetable(liborrate,'csv');
```

d.

```
libor = writetable(liborrate);
```

4. Write the function `row_col` that takes as input a vector `v` and returns a true value if `v` is a column vector and false if it is a row vector.

```
>> function y = row_col(v)
```

$$[row, col] = \text{size}(v)$$

if col == 1

$$y = \underline{1} ;$$

else

 $y = 0$ i

end

end

5. Consider the vector

```
>> r = rand(8,1);
```

provide a one line command that returns the number of elements of r that are greater than 0.5.

>> sum(r > 0.5)

6. Given the function

```
1.function y=fun(z)
2.y=(z+3).*2
3.end
```

and the commands

```
>> clear all
>>y=[1 2];
>> x=fun(y)
```

What is x ?

$x = [8 \ 10]$

7. Given the function

```
1.function y=fun(z)
2.y=(z+3).*2
3.end
```

and the following sequence of commands

```
>>clear all
>> x=fun([1 2])
>>z=x-y
```

What is z ?

error: y is not defined!

8. Given the vector:

```
x = [1 NaN 6 -5 0 5]
```

what is the result of the following command?

```
>>x==x
ans= [1 0 1 1 1 1]
```

9. When A is a matrix and b is a scalar, the function `max(A,b)` returns a matrix with the same size of A , with the largest elements between A and b , as in the following example:

```
>>A = [1 7 3;
        6 2 9]
>>b= 5;
>>max(A,b)=
        [5 7 5;
         6 5 9]
```

Write a function called `mymax` that does the same thing without calling the function max

```
>> function y = mymax(A,b)
```

```
y = A ;
y(A < b) = b ;
end
```

10. Write the function `issquared` that returns true if at least one of the numbers in a given vector is a square of one of the other elements. Otherwise it returns false.

For example, given the vector

```
A = [2 3 4];
```

it should return TRUE, while with

```
A = [2 3];
```

it should return FALSE.

(Hint: the function `intersect` may be useful!)

```
>> function y = issquared(A)
```

```
a = intersect(A,A.^2);
if isempty(a);
    y = 0;
else
    y = 1;
end
end
```

The End.