Q7) A MATLAB function code is given below:

```
function [output1,output2]=function_exam(a,b)
k=a;
a=b-1;
b=k-1;
output1=a;
output2=b;
```

a: 5
b: 10
k: 5
a: 9
b: 4

output1 = 9
output2 = 4

In MATLAB if we execute this function as

[output1,output2]=function_exam(5,10)

Find the **values** of *output1* and *output2* after the function is executed. **(10 points)**

output1:......9........   *output2:......4...............*

Q8) A MATLAB function code is given below:

```
function output=function_exam_next_question(a,b,n)
for i=1:n,
   output(i)=a+b;
   a=b;
   b=output(i);
end
```

a: 0
b: 1
n: 5

i: 1
output(1)= 0+1= 1
a: 1
b: 1

i: 2
output(2)=1+1=2
a: 1
b: 2

i: 3
output(3)= 1+2=3
a: 2
b: 3

i: 4
output(4)= 2+3=5
a: 3
b: 5

i: 5
output(5)= 3+5=8
a: 5
b: 8

In MATLAB if we execute this function as:

output=function_exam_next_question(0,1,5)

Find the 'vector' *output* after the function is executed **(15 points)**

output:...[1 2 3 5 8]   *result*

Q9) Mechatronic Components **(15 points)**

a) Sketch the feedback control loop and explain its main components. **(7 points)**
b) Which actuator is suitable for applying large forces? **(4 points)**
c) Which sensor is suitable for measuring small distance changes? **(4 points)**