

Question 1: Model with a Main: First Without IO, change the membrane potential value

**MainProgram** *Neuron()* *#no inputs*

**Declaration**

*Vini=70 #global variable used by function Vmembrane*

*I=200 #basic parameters that will be part of the logic operations*

*n=1000*

*V\_reset=-75*

*V\_th=-65*

*dt=0.1*

*...*

**Start**

*Vmembrane* ← Logic operations on *Vmembrane* *#so the global variable changed*  
*#but nothing is returned*

**End**

Question 2: Model with a Main: With I/O system, input made by keyboard.

**MainProgram** *Neuron(Vini)* *#the input is provided by the keyboard*

**Declaration**

*I=200 #basic parameters that will be part of the logic operations*

*n=1000*

*V\_reset=-75*

*V\_th=-65*

*dt=0.1*

*...*

**Start**

*Vmembrane* ← Logic operations on *Vmembrane*

*Return Vmembrane*

**End**

Question 3: Model with a Main: With I/O system, input made by keyboard, output spike using function call

**Function** *Vmembrane(Vini//float)*

**Declaration**

**Start**

*Vmembrane* ← Logic operations on *Vmembrane*

*Return Vmembrane*

**End function** *Vmembrane*

**MainProgram** *Neuron(Vini)*

**Declaration**

```

l=200 #basic parameters that will be part of the logic operations
n=1000
V_reset=-75
V_th=-65
dt=0.1
...

```

**Start**

```

Function Vmembrane(Vini)
  If Vmembrane(Vini)>V_th
    Return True #we admit the function neuron returns true if the neuron spikes.
  Endif

```

**End**

Question 4: Model with a Main: With I/O system, input made by a command line, output spike using function call

**Function** Vmembrane(Vini//float)

**Declaration****Start**

```

Vmembrane ← Logic operations on Vmembrane
Return Vmembrane

```

**End function Vmembrane**

**MainProgram** Neuron() *#inputs are not provided by keyboard anymore*

**Declaration**

```

l=200 #basic parameters that will be part of the logic operations
n=1000
V_reset=-75
V_th=-65
dt=0.1
...

```

**Start**

```

read(Vini) on input={keyboard, port, mouse,...}
Function Vmembrane(Vini)
  If Vmembrane(Vini)>V_th
    Return True #we admit the function neuron returns true if the neuron spikes.
  Endif

```

**End**