**Surname(s):** | **Name:**

## Exercise 2 *[40%]*

Considering that the table of states for the previous exercise is the following one:

| ***Events*** | **States** | | | |
|---|---|---|---|---|
| | **0** | **1** | **2** | **3** |
| $almond(x)$ | 1 | 1 | ANA | 1 |
| $walnut(x)$ | 1 | 1 | ANA | 1 |
| $apple(x)$ | 2 | ANA | 2 | 2 |
| $label()$ | ANA | 3 | 3 | ANA |
| $charge()$ | ANA | ANA | ANA | 0 |

You are required to:

1. Provide the data status, considering that every time a bag is closed, the price of the bag must be printed on the label and that the total price of all labelled bags pending for payment must be known. What would be the initial values? *[10%]*
2. Provide the table of actions for a groceries store where almond price is 20 €/Kg., walnut price is 15 €/Kg. and apple price is 2€/Kg. *[60%]*
3. Provide the trace for the following sequence of events: $almond(100)$, $walnut(200)$, $almond(50)$, $label()$, $apple(1000)$, $walnut(50)$, $label()$, charge(). *[30%]*

## Exercise 3 *[20%]*

What would be the new graph of states if there was a new *generateBag()* event such that:

- It can only happen at the beginning of the system or immediately after labelling a bag.
- You can only add products to an existing bag following the specifications of exercise 1, or if a bag has been just generated by the *generateBag()* event.
- You can label empty bags (its price would be 0€).