**Question 1**

In order to achieve the desired effect, I would create a method based on PWM (Pulse Width Modulation), where it would be possible to control the time of the rising ramp from 0% to 100% according to the hardware requirements. This method could also be used to an inductive load, but it is important to pay more attention to the PWM frequency operation.

**Question 4**

In order to use a microcontroller to communicate with several other boards through UART I would suggest to use RS485, and to guarantee that messages are delivered correctly I would use any standard protocol such as Modbus for example.