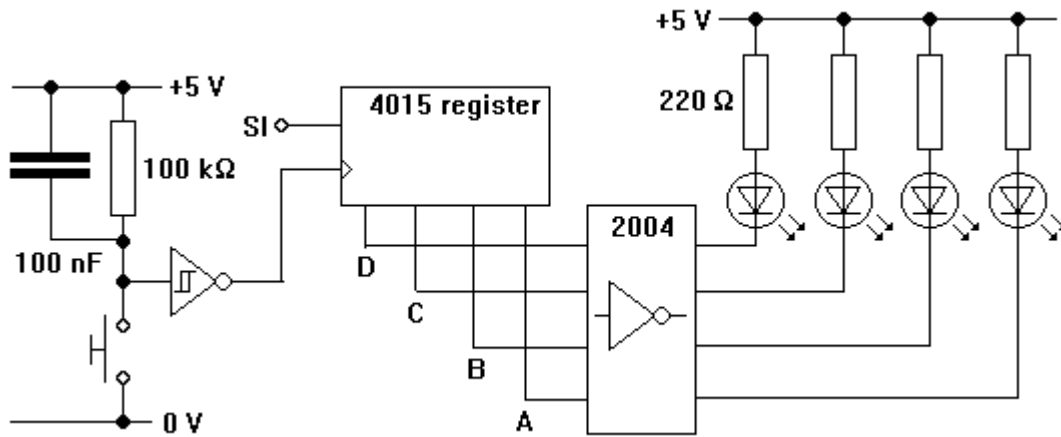
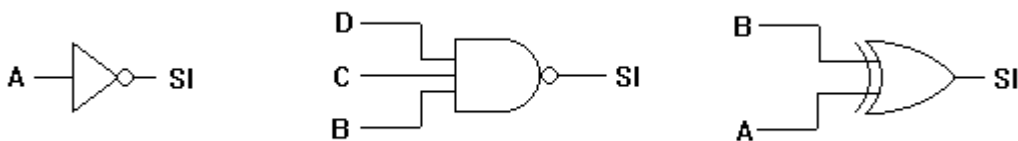


## Generating sequences with shift registers

You are going to assemble and test a system which uses a shift register to generate various sequences. The initial circuit is shown below.



- 1 Assemble the pulse generator at the left. Check that its output goes high each time that the switch is pressed.
- 2 Add the 4015 shift register, drivers and LEDs. Hold the reset pin on the shift register low.
- 3 Connect the serial input SI to +5 V. Press the switch a few times. If all is well, the outputs should all go high one after the other.
- 4 Connect SI to 0 V. Press the switch a few times and admire the LEDs going off one after the other.
- 5 The diagram below shows three different ways of feeding the register outputs back to the serial input SI. Try each one in turn, noting the sequence of 1s and 0s they produce at A.



- 6 Predict the sequence of signals at A if  $SI = \overline{D + C}$ . Then assemble the circuit and verify that your prediction is correct.