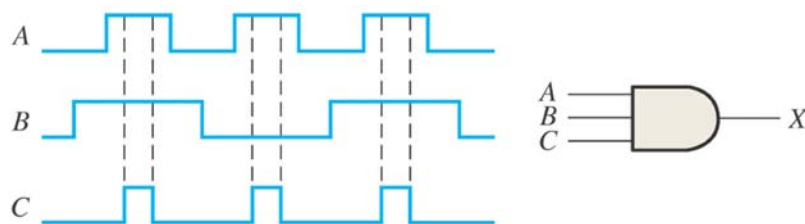


Digital Electronics

Tutorial Sheet 3

- 1.* Give the ASCII code for the letters U and k in both binary and hex representations.
- 2.* What is the main feature of Gray code which is different to ordinary binary code?
- 3.* Write out the truth tables for a 3 input NAND and a 3 input NOR function.
- 4.* How many lines are there in a truth table with 16 inputs?
- 5.** Determine the output waveform of the 3-input AND gate as shown below.



- 6.** Write out the truth table for the function $S = A \cdot B + C \cdot D$
- 7.*** Design a connection configuration for two switches which could be used on the stairway of a house to control a single light. One switch should be at the bottom of the stairs and the other at the top. The light should be able to be controlled from both the bottom and the top of the stairs. The rule to be followed is that switching either switch should change the state of the light, i.e. if the light is on it goes off and if the light is off it goes on, when either switch is switched. (Hint: consider the use of two-way switches).