Computer Architecture

Tutorial 3

1. An industrial machine has sensors placed at 5 different locations. If one of the following conditions arises the machine has to be stopped and should fire an alarm.

* If sensor 1 and 2 are activated
* If sensor 1 and 4 are activated
* If sensor 2, 3 and 5 are activated

Answer the following questions based on this

i. Draw a truth table for the above machine (5 marks)

ii. Using K-maps simplify the truth table (get the SOP expression) (5 marks)

iii. Implement the circuit using NAND gates only (5 marks)