Set for Team 19

Construct the necessary truth table(s), Boolean functions and Simulation file with the appropriate IC diagram comprising the basic logic gates that represent the following scenario:

Inside a cooling system of a power plant, there are 4 compartments; 2 of which contain a temperature sensor each, and other two contain cooling fans each. The cooling system gives emergency alarm if the temperature of any sensor raises beyond a threshold value **AND** the corresponding any of the compartments that contain cooling fans do not start functioning at once. Both of the compartments that hold cooling fans can cool down **ANY** of the compartments that contain those temperature sensors. What do you think how the logic can be developed to build such a cooling system with a Boolean function with respective truth table that represent the scenario?