1. The treatments given to a patient based on the medical condition of suspicious people and the conditions they faced are given below. Patients are hospitalized with coughs and fever and if they had a close contact with an infected person and have cough and fever symptoms, they are referred for PCR testing. Or else will be sent to quarantine.

Input	Value
Body temperature is greater than the normal value	1
Body temperature is in the normal value	0
With cough	1
Without cough	0
Having a close contact with an infected person	1
Not having a close contact with an infected person	0

a. Construct a truth table to find out patients (Output - F) who are hospitalized and referred for PCR testing. Give the Boolean expression for that.
b. Simplify the above Boolean expression using Boolean algebraic rules.
c. Construct a logic circuit for simplified Boolean expression using AND and OR gates ONLY.