Name:

Teacher:

Class:

Date:

Logic Gate Applications - Practice Problems Set 2
逻辑门运用-练习题2:

1. A firm wishes to have a safe protected by a security alarm at night. The requirement for the alarm is as follows: It must be possible to switch the alarm **ON** and **OFF**, and the alarm should ring if the safe door is opened when the room is dark.
   某公司希望在夜间有一个安全警报来保护保险箱。警报的要求如下：必须能够打开和关闭警报，如果房间黑暗时打开安全门警报响起。

   a) What Input sensor should be used?
      应该使用什么输入传感器？

      _____

   b) Draw a circuit diagram for an electrical system which would operate the alarm based on the conditions that have been set by the client (firm).
      绘制电气系统的电路图，该系统将根据客户（公司）设定的条件操作警报。

      Draw a circuit diagram here:

   c) The security system should have contained one of the following logic gates: **NOT**, **AND**, & an **OR** gate. Complete the following truth tables for each logic gate in the circuit.
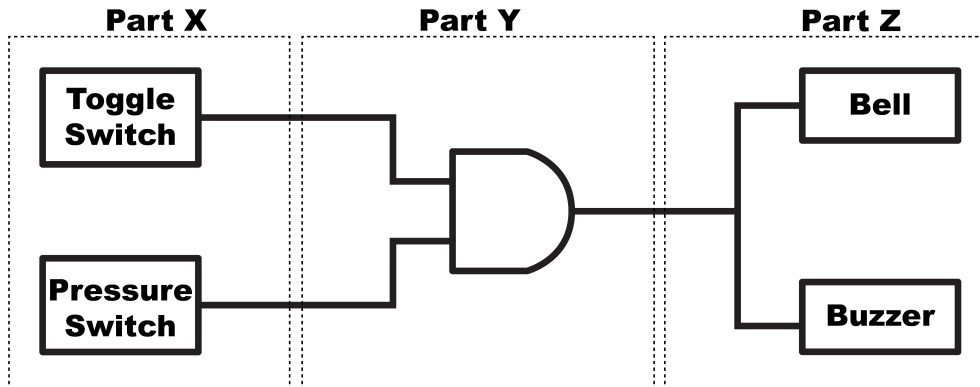   安全系统应包含以下逻辑门之一：NOT、AND和OR门。为电路中的每个逻辑门填写以下真值表。

NOT Gate	
Input	**Output**
0	
1	

OR Gate		
Input 1	**Input 2**	**Ouput**
0	**0**	
0	**1**	
1	**0**	
1	**1**	

AND Gate		
Input 1	**Input 2**	**Ouput**
0	**0**	
0	**1**	
1	**0**	
1	**1**	

2. The diagram below shows a simple alarm system for motorbike. There are two types of switches used in the design of the alarm system: a toggle switch which the rider turns on when the bicycle is parked, and a pressure switch in the saddle (seat).
下图显示了一个简单的摩托车报警系统。报警系统的设计中使用了两种类型的开关：骑手在自行车停放时打开的拨动开关和鞍座（座椅）上的压力开关。

Part X	Part Y	Part Z

Toggle Switch

Pressure Switch

Bell

Buzzer

a) Identify the different sections of this circuit.
识别此电路的各部分。

    i. Control Block控制板: _____

    ii. Input Sensors输入传感器: _____

    iii. Output Sensor输出传感器: _____

b) What logic gate was used to create this circuit?
什么逻辑门被用来创建此电路?

_____

c) Complete the truth table for this system. 完成此系统的真值表。

Toggle Switch	Presure Switch	Buzzer	Bell
1	1		
1	0		
0	1		
0	0		

d) What conditions will cause the alarm to go off?
什么情况会导致警报响起?

_____
_____
_____
_____