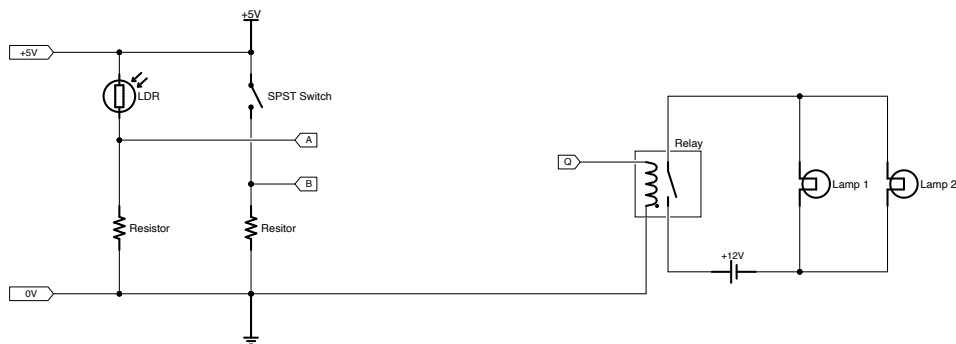Name:

Teacher:

Class:

Date:

Logic And Electrical Engineering - Practice Problems Set 2
逻辑和电子工程-练习题2

1. The figure below is part of a circuit that is used to turn on the parking lights of a car automatically when it is dark. A switch is included so that when it is OPEN, as shown in the diagram, the automatic system will be deactivated (turned OFF). A Light Dependant Resistor (LDR) is used as an input device to control the circuit.
下图是电路的一部分，用于在黑暗时自动打开汽车的停车灯。包括一个开关，当其打开时，如图所示，自动系统将停用（关闭）。光相关电阻器（LDR）用作控制电路的输入设备。

Car Parking Light Circuit 汽车停车灯电路

a) The *truth table* for this circuit is shown below. One row has already been completed.
该电路的真值表如下所示。其中一列已给出。

LDR (Logic @ A)		Switch (Logic @ B)		Parking Lights	Relay (Logic @ Q)
Light	1	Open	___	OFF	0
Light	1	Closed	___	_____	___
Dark	0	Open	___	_____	___
Dark	0	Closed	___	_____	___

b) Complete the truth table for the car parking light circuit shown above.
完成上述汽车停车灯电路的真值表。

   i. Complete columns 1 and 2 to show the logic at levels A and B
      完成第1列和第2列，以显示级别A和B的逻辑
   ii. Complete column 3 to show when the parking light should be ON or OFF
      完成第3栏，以显示停车灯何时应亮起或熄灭
   iii. Complete column 4 to show the corresponding logic at level Q
      完成第4列，以显示级别Q的相应逻辑

b) Complete the following logic statement by inserting 0 or 1 where appropriate:
通过在适当的位置插入0或1来完成以下逻辑语句：

   The lamp will be **ON** when the **input A** is _____ and the **input B** is _____.
   当输入A为_____且输入B为_____时，指示灯亮。

c) **On the figure shown above**, indicate where an **AND** and a **NOT** gate would be inserted between points **A,B, and Q** to complete the circuit.
在上图中，在点A、B和Q之间插入AND和NOT门的位置以完成电路。

d) What is meant by the term **SPST**?
SPST一词是什么意思?

_____
_____
_____

e) Describe how a **SPST toggle switch** works.
描述SPST切换开关是如何工作的。

_____
_____
_____

f) Why would you want a **toggle switch** rather than a **push switch** for this circuit?
为什么此电路使用拨动开关而不是按钮开关?

_____
_____
_____

g) Describe how a **Light Dependant Resistor (LDR)** works.
描述光相关电阻器（LDR）的工作原理。

_____
_____
_____

h) What is a **relay switch** and how dose it work?
什么是继电器开关? 它是如何工作的?

_____
_____
_____

i) Explain how this circuit works.
解释此电路是如何工作的。

_____
_____
_____
_____
_____