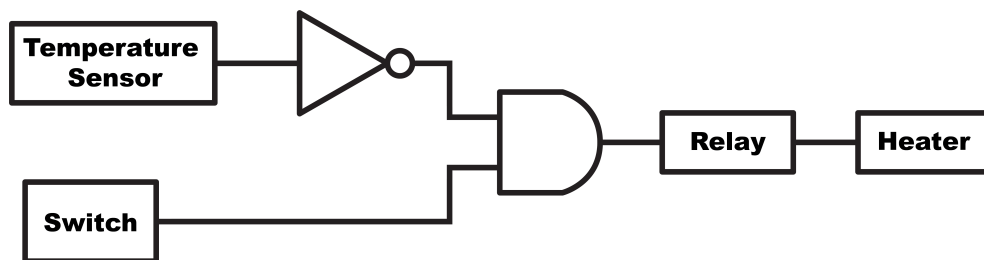


Name:
Teacher:
Class:
Date:

Logic Gate Applications - Practice Problems Set 1:

An engineer has designed the following two circuits and has chosen to show them as block diagrams during a presentation. The block diagrams show the basics about how the circuits will operate, but they do not show the actual structure of the circuit, its base components, or how the individual components would connect to each other.

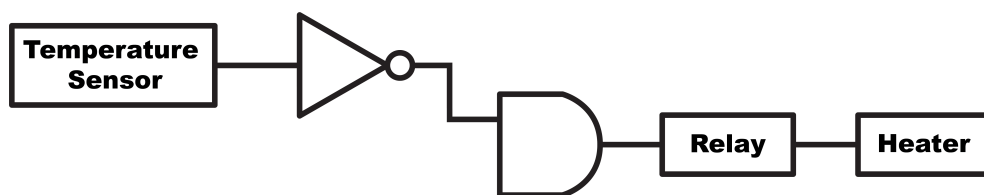
1. The main purpose of the first circuit that has been designed is to switch on a heater when the temperature drops below a certain level.



- a) Name the two types of logic gates that are using in this circuit.

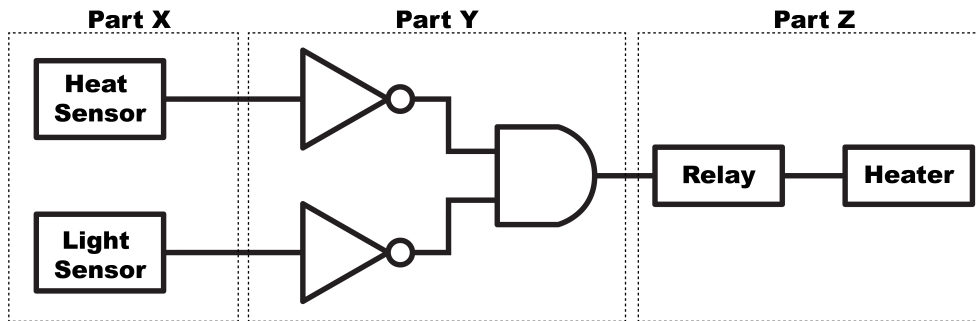
i. _____
ii. _____

- b) Redesign the logic circuit so that the heater will only come on at night.



- c) The marketing division of the company wants to come up with practical uses for either circuit design. Provide one real-world application for this circuit.

2. The second circuit that has been designed is composed of three main sections that have been labeled **X, Y & Z**.



- a) During the presentation one of the individuals in the audience asks the engineer to give an example of a device or electrical component that could be use as a:

- i. Heat sensor: _____
- ii. Light sensor: _____

- b) Another individual asks the engineer which part of the circuit (**X, Y, or Z**) are:

- i. The output devices? _____
- ii. The input devices? _____
- iii. The processor? _____

- c) The heat sensor is **ON** when it is hot and **OFF** when it is cold. The light sensor is **ON** when it is light and **OFF** when it is dark.

- i. Explain what happens in each part of the circuit when it is **both** dark and cold.

- ii. Think of at least one real-world application (use) for this circuit.
