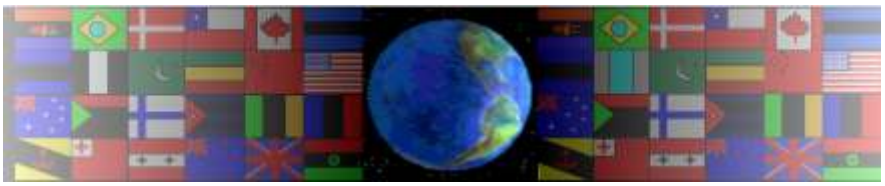
DIGITAL LOGIC CIRCUITS

On behalf of The World Association of Technology Teachers

W.A.T.T.



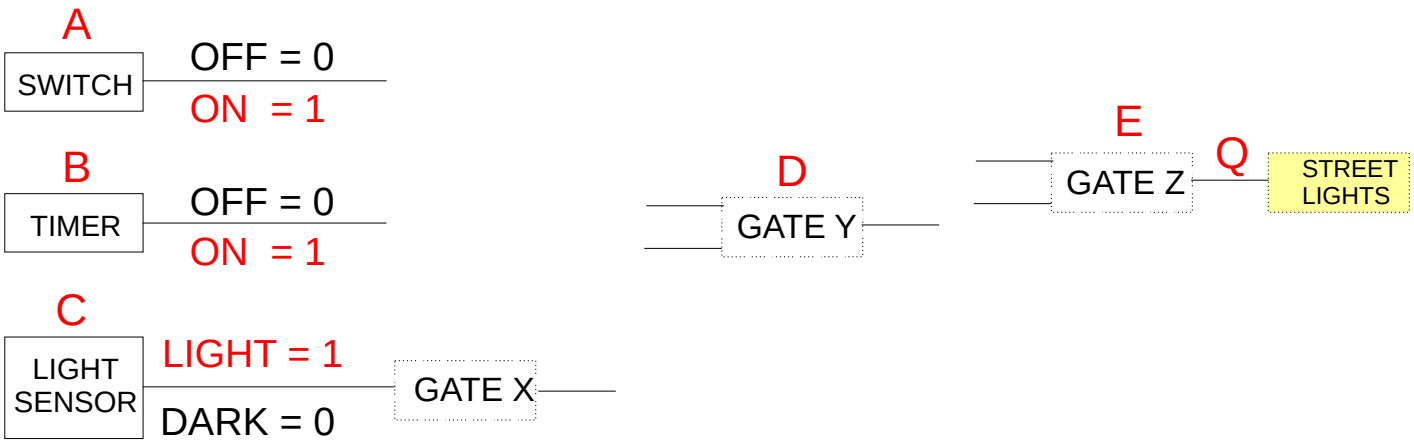
World Association of Technology Teachers

This exercise can be printed and used by teachers and students. It is recommended that you view the website (www.technologystudent.com) before attempting the design sheet .

DIGITAL LOGIC EXAMINATION QUESTION

1. A local systems designer has developed a system to control street lights. The street lights can be turned on manually, or by the use of a timer so long as a light sensing unit indicates that it is dark. Below is an incomplete logic circuit for the control system.

1A. Complete the diagram below using the correct logic gates. Note the output of the dark/light sensor is '1' (true, high, on) when it is light. The lights must be turned during the dark of night.

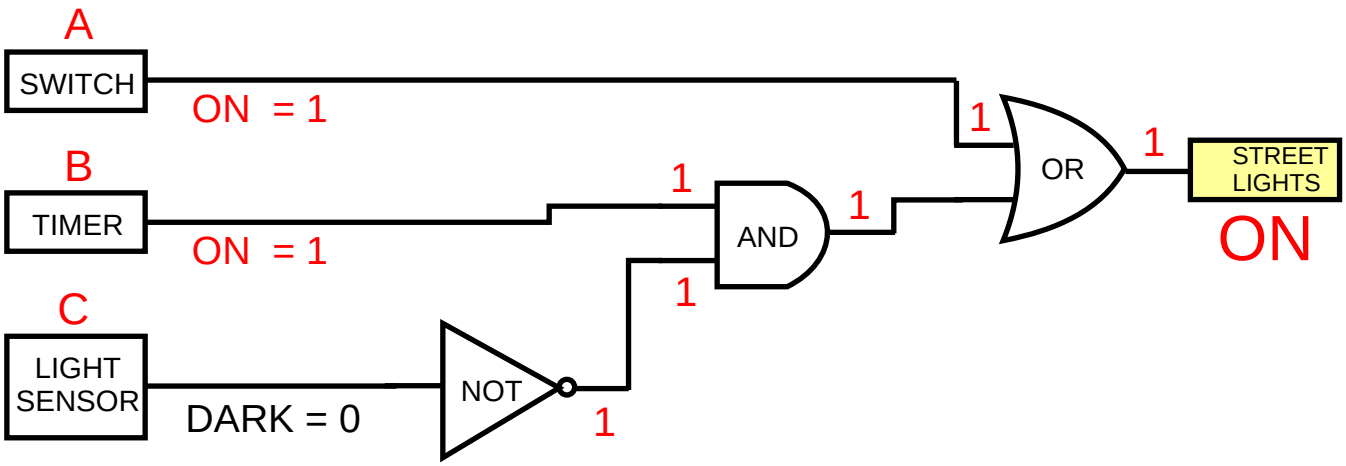


DIGITAL LOGIC EXAMINATION QUESTION

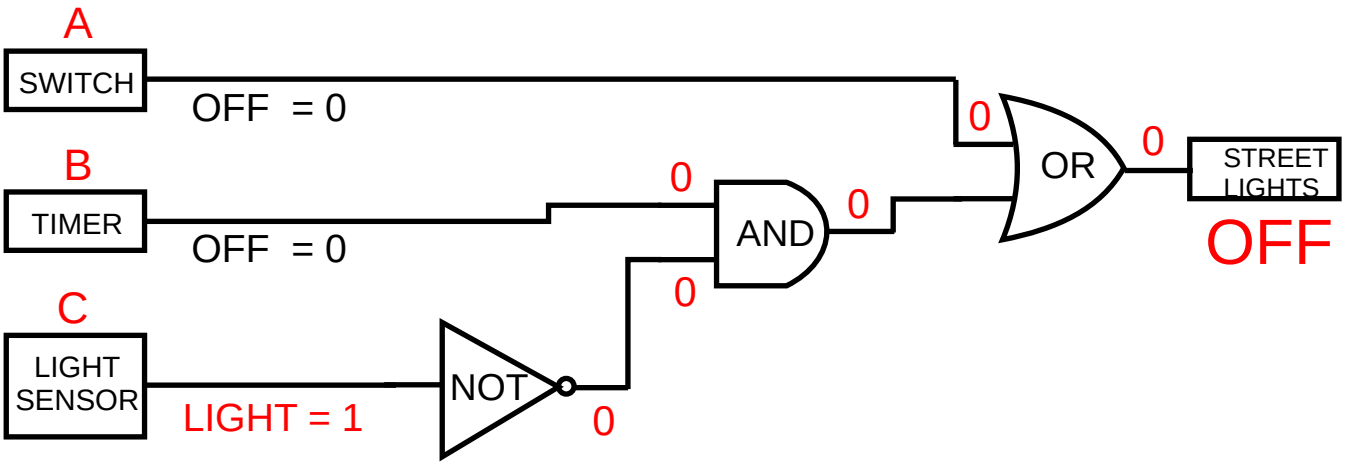
1B. Name the logic gates you have used:

GATE X ..... GATE Y ..... GATE Z .....

Below is the logic circuit showing the logic states of inputs and outputs of all the gates when the street lights are **ON**.



Below is the logic circuit showing the logic states of inputs and outputs of all the gates when the street lights are **OFF**.



1C. On the logic circuit below, write the logic states of all inputs and outputs for the following:
It is night time, the manual switch is off and the timer is 'on'. Will the street lights be on or off ?