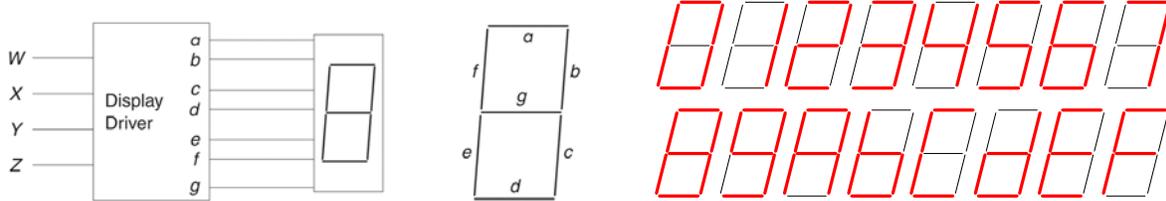


PRE-LAB

Design a display driver for a seven segment display. The input is a four-bit representation (W, X, Y, Z, with Z being the LSb) of a hexadecimal number (0 to F). The seven outputs are connected to a seven-segment display (**active low**). A sketch of the desired operation is shown below.



1. Develop a truth table for this display driver.
2. Using K-map technique, develop the minimum SOP expressions for all segments.

LAB

1. Create a new project for this lab.
2. Create a new vhd file named *Display_Driver.vhd* and implement the display driver to control all seven segments.
3. Compile, simulate and verify with your truth table for correct outputs.
4. Assign the inputs and outputs.

| Inputs | Switches | Outputs | HEX0 |
|--------|----------|---------|---------|
| Z | SW0 | a | HEX0[0] |
| Y | SW1 | b | HEX0[1] |
| X | SW2 | c | HEX0[2] |
| W | SW3 | d | HEX0[3] |
| | | e | HEX0[4] |
| | | f | HEX0[5] |
| | | g | HEX0[6] |

5. Demonstrate your design to your instructor.