Name and Student ID:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Lab Section:\_\_

Date:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**PRELAB:**

**Q1.** Use Figure 1 and the table below to fill in the truth table on the next page.

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Z | Y | X | W | Display |  | Z | Y | X | W | Display |
| 0 | 0 | 0 | 0 |  |  | 1 | 0 | 0 | 0 |  |
| 0 | 0 | 0 | 1 |  |  | 1 | 0 | 0 | 1 |  |
| 0 | 0 | 1 | 0 |  |  | 1 | 0 | 1 | 0 |  |
| 0 | 0 | 1 | 1 |  |  | 1 | 0 | 1 | 1 |  |
| 0 | 1 | 0 | 0 |  |  | 1 | 1 | 0 | 0 |  |
| 0 | 1 | 0 | 1 |  |  | 1 | 1 | 0 | 1 |  |
| 0 | 1 | 1 | 0 |  |  | 1 | 1 | 1 | 0 |  |
| 0 | 1 | 1 | 1 |  |  | 1 | 1 | 1 | 1 |  |

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Z** | **Y** | **X** | **W** | **A** | **B** | **C** | **D** | **E** | **F** | **G** |
| 0 | 0 | 0 | 0 | **0** | **0** | **0** | **0** | **0** | **0** | **1** |
| 0 | 0 | 0 | 1 |  |  |  |  |  |  |  |
| 0 | 0 | 1 | 0 |  |  |  |  |  |  |  |
| 0 | 0 | 1 | 1 |  |  |  |  |  |  |  |
| 0 | 1 | 0 | 0 |  |  |  |  |  |  |  |
| 0 | 1 | 0 | 1 |  |  |  |  |  |  |  |
| 0 | 1 | 1 | 0 |  |  |  |  |  |  |  |
| 0 | 1 | 1 | 1 |  |  |  |  |  |  |  |
| 1 | 0 | 0 | 0 |  |  |  |  |  |  |  |
| 1 | 0 | 0 | 1 |  |  |  |  |  |  |  |
| 1 | 0 | 1 | 0 |  |  |  |  |  |  |  |
| 1 | 0 | 1 | 1 |  |  |  |  |  |  |  |
| 1 | 1 | 0 | 0 |  |  |  |  |  |  |  |
| 1 | 1 | 0 | 1 |  |  |  |  |  |  |  |
| 1 | 1 | 1 | 0 |  |  |  |  |  |  |  |
| 1 | 1 | 1 | 1 |  |  |  |  |  |  |  |

**Q2.** Write the verilog code for the 7-Segment Display Decoder based on the truth table from Q1. You only need to write the skeleton code (i.e., a code which shows only a rough outline and no unnecessary or repetitive details) below.

TA Initials: \_\_\_\_\_\_\_\_\_

**LAB:**

**3.0 Lab5step0**

Hardware demonstrates a good circuit. TA Initials: \_\_\_\_\_\_\_\_\_

**4.0 Lab5step1**

Hardware demonstrates a good circuit. TA Initials: \_\_\_\_\_\_\_\_\_