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.

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| X3 | X2 | X1 | X0 | Display |  | X3 | X2 | X1 | X0 | 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 |  |

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **X3** | **X2** | **X1** | **X0** | **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 (seven\_seg\_decoder)**

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

**4.0 Lab5step1**

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