**Digital Design and Computer Organization Laboratory**

**UE19CS206**

**3rd Semester, Academic Year 2020-21**

Date:

|  |  |  |
| --- | --- | --- |
| Name: | SRN: | Section |

Week#\_\_3\_\_\_\_\_\_\_\_\_

Program Number :\_\_\_1\_\_\_\_

Title of the Program

**16 BIT ALU**

Aim:

**AIM: DESIGN A 16 BIT ALU FULL ADDER USING THE FULL ADDER MODULE AND COMPLETE THE TRUTH TABLE TO IMPLEMENT ADDITION, SUBTRACTION, AND OPERATION,** **XOR OPERATION**

1: Paste the Screen Shot of the source code

2: Paste the Screen shot of the GTKWave form

3. Complete the truth table for all the 16 combinations that implement addition, subtraction, AND along with OR operation

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **op[1:0]** | **i0[15:0]** | **i1[15:0]** | **Output** |
| **TESTVECTOR0** | **2’b00** | **16’h0000** | **16’h0000** |  |
| **TESTVECTOR1** | **2’b00** | **16’haa55** | **16’h55aa** |  |
| **TESTVECTOR2** | **2’b00** | **16'hffff** | **16'h0001** |  |
| **TESTVECTOR3** | **2’b00** | **16'h0001** | **16'h7fff** |  |
| **TESTVECTOR4** | **2'b01** | **16'h0000** | **16'h0000** |  |
| **TESTVECTOR5** | **2'b01** | **16'haa55** | **16'h55aa** |  |
| **TESTVECTOR6** | **2'b01** | **16'hffff** | **16'h0001;** |  |
| **TESTVECTOR7** | **2'b01** | **16‘h0001** | **16'h7fff;** |  |
| **TESTVECTOR8** | **2’b10** | **16’h0000** | **16’h0000** |  | |
| **TESTVECTOR9** | **2’b10** | **16’haa55** | **16’h55aa** |  | |
| **TESTVECTOR10** | **2’b10** | **16'hffff** | **16'h0001** |  | |
| **TESTVECTOR11** | **2’b10** | **16'h0001** | **16'h7fff** |  | |
| **TESTVECTOR 12** | **2'b11** | **16'h0000** | **16'h0000** |  | |
| **TESTVECTOR 13** | **2'b11** | **16'haa55** | **16'h55aa** |  | |
| **TESTVECTOR 14** | **2'b11** | **16'hffff** | **16'h0001;** |  | |
| **TESTVECTOR 15** | **2'b11** | **16‘h0001** | **16'h7fff;** |  | |

**Disclaimer:**

* The programs and output submitted is duly written, verified and executed my me.
* I have not copied from any of my peers nor from the external resource such as internet.
* If found plagiarized, I will abide with the disciplinary action of the University.

Signature:

Name:

SRN:

Section:

Date: