

## Exp5: Comparator

### Objectives:

Designing a comparator is the topic of this experiment. The comparison of two numbers is an operation that determines if one number is greater than, less than, or equal to the other number. The main goal of this experiment is how to create a comparator with VHDL.

### Logic Design:

If  $a > b$  then greater =1, less=0& equal=0

If  $a < b$  then greater =0, less=1& equal=0

If  $a = b$  then greater =0, less=0& equal=1

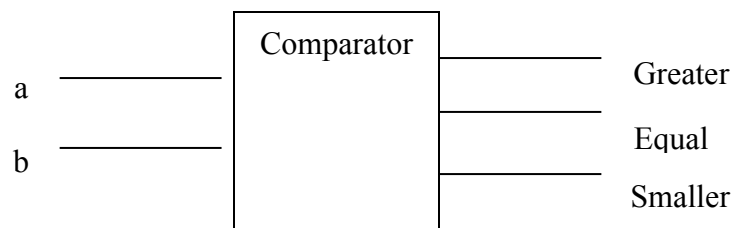


Figure (5-1): Comparator.

### Assigning Pins with Constraints:

Signals		Element on XSA-200 Board	XC2S200 FPGA Pin
Input	A	Sw1-1	P11
	B	Sw1-2	M10
Output	Greater	Segment A	G16
	Equal	Segment G	M16
	Smaller	Segment D	N14