Comparator to find low and high

- If $in_0 < in_1 \Rightarrow in_0 - in_1 < 0 \Rightarrow S = 1$
- If $in_0 > in_1 \Rightarrow in_0 - in_1 > 0 \Rightarrow S = 0$
Design a circuit to sort 4 numbers from low to high

![Circuit Diagram]

The circuit uses comparators (Comp) to compare the input numbers and route them accordingly to sort them from low to high.
Example

• Sort 1, 2, 4 and 5 from low to high

• 5 and 4 are given to in1 and in2; 2 and 1 are given to in3 and in4
• From the comparators 5 and 2 are selected as high; 1 and 4 selected as low
Now the selected low and high o/p’s are sent to another 2 comparator blocks.
Example

• Now the low values of two comparator blocks are given to one comparator and high values are given to another

• One comparator block gives low value(1) and other gives high value(5) of all the inputs

• The remaining values are sent to the final comparator which gives the low and high value of the