

## **Lab task# 2**

### **Q1: What are the generations of IC's?**

Ans: There are different generations of integrated circuits with increases in the number of transistors and logic gates per chip. List is given of generations and approximate capacity of each chip.

SSI (small-scale integration) - 1 to 10 transistors and 1 to 12 logic gates.

MSI (medium-scale integration) - 10 to 500 transistors and 13 to 99 logic gates.

LSI (large-scale integration) - 500 to 20,000 transistors and 100 to 9,999 logic gates.

VLSI (very-large-scale integration) - 20,000 to 1,000,000 transistors and 10,000 to 99,999 logic gates.

ULSI (ultra-large-scale integration) - over 1,000,000 transistors and 100,000 logic gates.

### **Q2: What is TTL?**

Ans: Transistor-transistor logic (TTL) is logic family made up of (Bipolar Junction Transistors). The transistor performs two functions, i.e., logic and amplifying. The best examples of TTL are logic gates are 7402 NOR Gate and 7400 NAND. TTL ICs usually have four-digit numbers beginning with 74 or 54. TTL logic includes several transistors that have several emitters as well as several inputs. TTL is characterized by high switching speed (in some cases upwards of 125 MHz) and relative immunity to noise. Its principal drawback is the fact that circuits using TTL draws more current than equivalent circuits using metal oxide semiconductor (MOS) logic. Low-current TTL devices are also available.

### **Q3: Difference between Analog and Digital?**

Ans: Analog and digital signals are the types of signals carrying information. The major difference between both signals is that the analog signals have continuous electrical signals, while digital signals have non-continuous electrical signals. Analog uses a continuous range of values, helps to represent information. While, Digital signal uses discrete 0 and 1 to represent information. Analog signal doesn't offer any fixed range. While, Digital signal has a finite number, i.e., 0 and 1.

### **Q4: Make a list of important ICs that we are going to use in the DLD lab?**

Number:	Description:	Number:	Description:
7400:	Quad 2-input NAND gate	7402:	Quad input NOR gate.
7408:	Quad 2-input AND gate	7432:	Quad 2-input OR gate
7486:	Quad 2-input XOR gate.		