**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.