6 Lecture - CS302

Important Subjective

1. **What is a logic gate?**
   Answer: A logic gate is an electronic device that performs a logical operation on one or more input signals to produce an output signal.

2. **What is a truth table?**
   Answer: A truth table is a table that lists all possible combinations of input values and their corresponding output values for a logic gate or circuit.

3. **What is the difference between a combinational logic circuit and a sequential logic circuit?**
   Answer: A combinational logic circuit produces an output based solely on the current input values, while a sequential logic circuit produces an output based on both the current input values and the current state of the circuit.

4. **What is the purpose of an inverter gate?**
   Answer: An inverter gate is used to invert or complement the input signal, producing an output that is the logical opposite of the input.

5. **What is the difference between an AND gate and an OR gate?**
   Answer: An AND gate produces a high output only if all of its inputs are high, while an OR gate produces a high output if any of its inputs are high.

6. **What is the propagation delay of a logic gate?**
   Answer: The propagation delay is the time it takes for a logic gate's output to respond to a change in its input.

7. **What is the difference between positive logic and negative logic?**
   Answer: In positive logic, a high voltage represents a logical "1" and a low voltage represents a logical "0", while in negative logic, the opposite is true.

8. **What is the function of a XOR gate?**
   Answer: A XOR gate produces a high output if the number of high inputs is odd, and a low output if the number of high inputs is even.

9. **What is a decoder circuit?**
   Answer: A decoder circuit takes a binary input and produces one of several possible outputs based on the input value.

10. **What is a multiplexer circuit?**
    Answer: A multiplexer circuit takes multiple input signals and selects one of them to pass through to the output based on a control signal.