

# 6 Lecture - CS501

## Important Subjective

1. **What is the purpose of RTL design in digital logic circuits?**

Answer: The purpose of RTL design is to represent the flow of data between registers using combinational and sequential logic circuits. It enables efficient use of hardware resources and facilitates design verification and testing.

**What is the difference between combinational and sequential logic circuits in RTL design?**

Answer: Combinational logic circuits do not have memory and generate output solely based on input, whereas sequential logic circuits have memory and generate output based on input and the state of the circuit.

**What is the significance of using RTL in modern digital system design?**

Answer: RTL enables efficient use of hardware resources, simplifies digital system design, and facilitates design verification and testing.

**What are the benefits of using RTL design in digital system design?**

Answer: The benefits of using RTL design include faster design process, higher level of abstraction, improved design verification and testing, and efficient use of hardware resources.

**What level of abstraction does RTL represent in digital system design?**

Answer: RTL represents a high level of abstraction in digital system design.

**How does RTL design facilitate design verification and testing?**

Answer: RTL design enables the creation of testbenches that simulate the behavior of the circuit and help verify its functionality.

**What is the role of registers in RTL design?**

Answer: Registers are used to hold data in digital logic circuits and enable the flow of data between different components.

**What is the significance of using both combinational and sequential logic circuits in RTL design?**

Answer: The use of both types of circuits allows for the implementation of complex functionality in digital logic circuits.

**What is the primary use of RTL design in digital system design?**

Answer: The primary use of RTL design is in the creation of digital systems such as CPUs, FPGAs, and ASICs.

**How does RTL design enable efficient use of hardware resources in digital system design?**

Answer: RTL design enables the implementation of complex functionality using a minimal number of hardware resources, thereby improving the efficiency of digital system design.