



SNS COLLEGE OF TECHNOLOGY
Coimbatore-35
An Autonomous Institution



Accredited by NBA – AICTE and Accredited by NAAC – UGC with 'A++' Grade
Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai

DEPARTMENT OF COMPUTER SCIENCE ENGINEERING

19ECB231 – DIGITAL ELECTRONICS

II YEAR/ III SEMESTER

UNIT 4 – DESIGN OF SEQUENTIAL CIRCUITS

TOPIC – UNIVERSAL SHIFT REGISTERS



REGISTERS



- A **register** is basically a storage space for units of memory that are used to transfer data for immediate use by the CPU (Central Processing Unit) for data processing.
- Also known as memory registers, they can actually form part of the computer processor as a processor register.
- The register is large enough to hold any kind of data, such as dates, instruction sets, storage addresses, bits, sequences, and characters.



- Some instruction sets are partly formed by registers.
- Types of registers include memory address register, memory buffer register, input output address register, input output buffer register, and shift register.



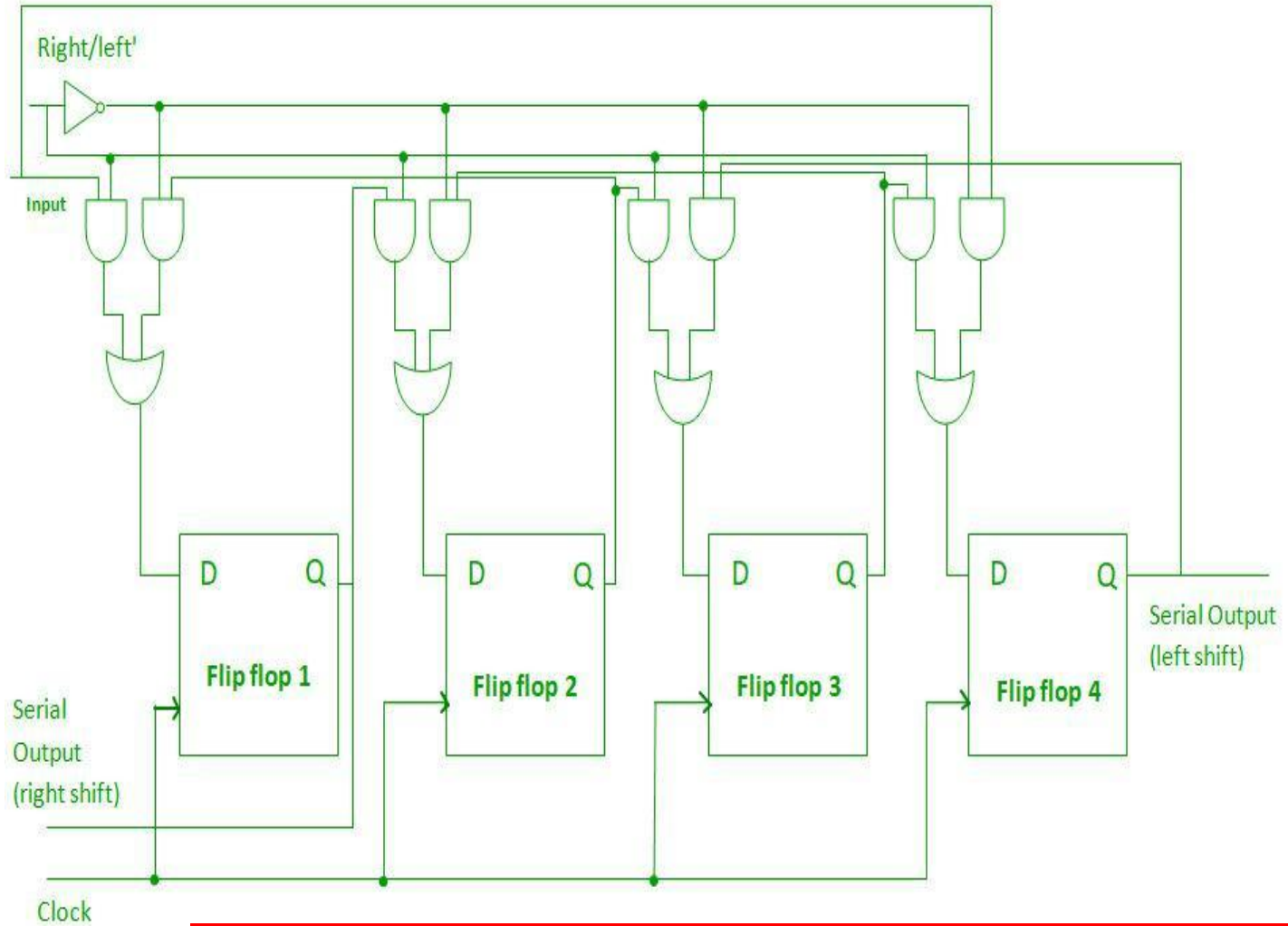
Bidirectional shift registers



- Bidirectional shift registers are the registers which are capable of shifting the data either right or left depending on the mode selected.
- If the mode selected is 1(high), the data will be shifted towards the right direction.
- If the mode selected is 0(low), the data will be shifted towards the left direction.
- The circuit consists of four D flip-flops which are connected. The input data is connected at two ends of the circuit and depending on the mode selected only one and gate is in the active state.



Bidirectional shift register





UNIVERSAL SHIFT REGISTER



- A Universal shift register is a register which has both the right shift and left shift with parallel load capabilities.
- Universal shift registers are used as memory elements in computers.
- A Unidirectional shift register is capable of shifting in only one direction.
- A bidirectional shift register is capable of shifting in both the directions.



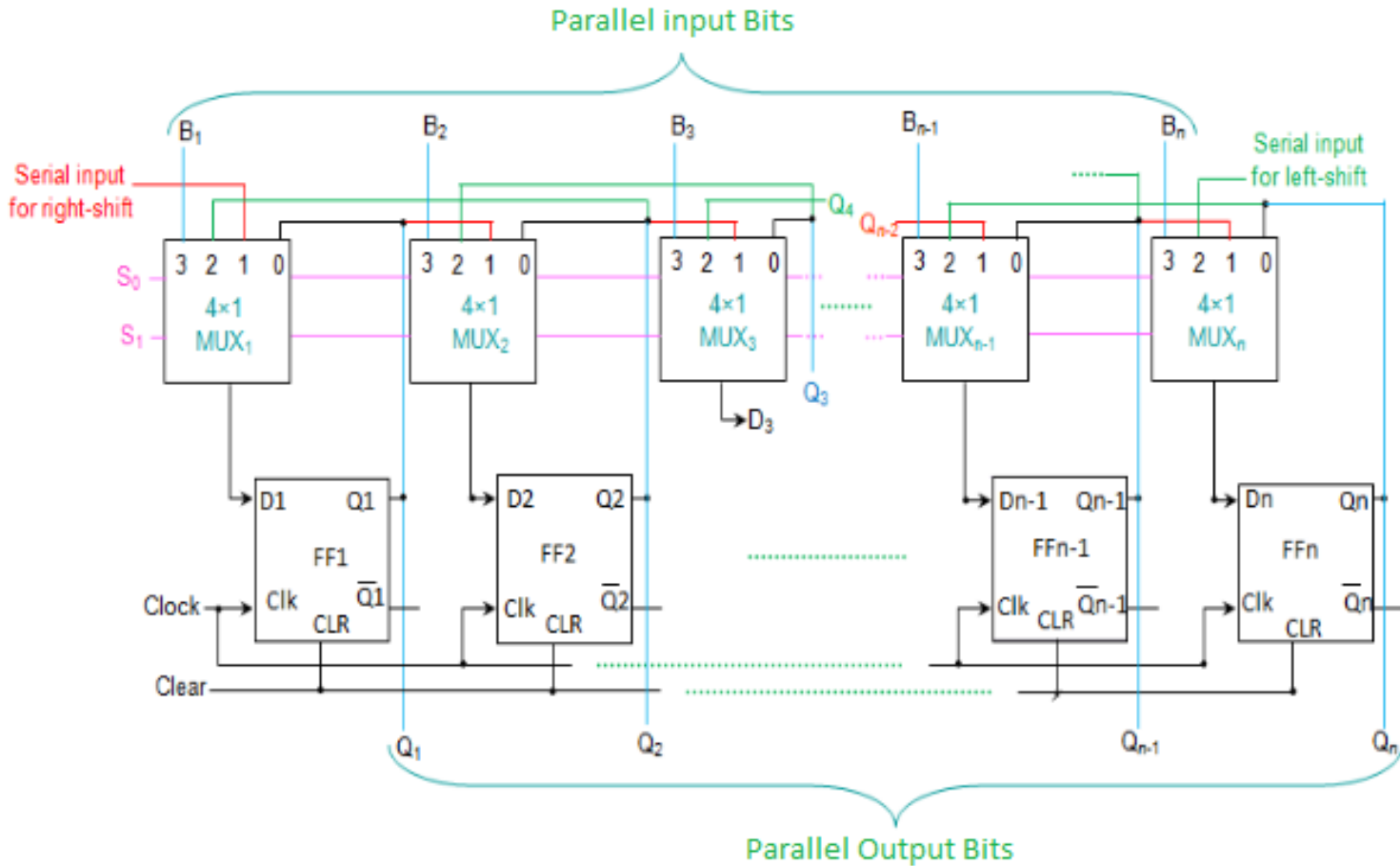
UNIVERSAL SHIFT REGISTER



- The Universal shift register is a combination design of **bidirectional** shift register and **unidirectional** shift register with parallel load provision.



UNIVERSAL SHIFT REGISTER





THANK YOU