

Unit-IV:Sequential Logic Circuits

Multiple Choice Questions (20)

1. Sequential circuits differ from combinational circuits because they have:

- A) More inputs
- B) Memory
- C) More outputs
- D) Fewer gates

Answer: B

2. The basic storage element in digital electronics is:

- A) Decoder
- B) Multiplexer
- C) Latch
- D) Comparator

Answer: C

3. Which latch is controlled by an Enable signal?

- A) D Latch
- B) Gated Latch
- C) T Flip-Flop
- D) JK Flip-Flop

Answer: B

4. The S-R flip-flop has how many inputs?

- A) One
- B) Two
- C) Three
- D) Four

Answer: B

5. Which flip-flop has only one data input?

- A) JK Flip-Flop
- B) T Flip-Flop
- C) D Flip-Flop
- D) SR Flip-Flop

Answer: C

6. The D flip-flop is also known as:

- A) Delay Flip-Flop
- B) Data Flip-Flop
- C) Both A and B
- D) Toggle Flip-Flop

Answer: C

7. Which flip-flop eliminates the invalid state of the SR flip-flop?

- A) D Flip-Flop
- B) JK Flip-Flop
- C) T Flip-Flop
- D) RS Latch

Answer: B

8. The T flip-flop is mainly used in:

- A) Encoders
- B) Counters
- C) Decoders
- D) Multiplexers

Answer: B

9. Master-Slave JK flip-flop is used to eliminate:

- A) Fan-out
- B) Race-around condition
- C) Propagation delay
- D) Noise

Answer: B

10. A clock signal is required for:

- A) Combinational circuits only
- B) Synchronous sequential circuits
- C) Decoders
- D) Encoders

Answer: B

11. A counter is used to:

- A) Compare numbers
- B) Count clock pulses
- C) Store data permanently
- D) Encode data

Answer: B

12. Which counter operates without a common clock?

- A) Synchronous Counter
- B) Asynchronous Counter
- C) Ring Counter
- D) Johnson Counter

Answer: B

13. Which counter has all flip-flops triggered simultaneously?

- A) Ripple Counter
- B) Asynchronous Counter
- C) Synchronous Counter
- D) Decade Counter

Answer: C

14. A shift register is mainly used for:

- A) Code conversion
- B) Data storage and shifting
- C) Error correction
- D) Multiplication only

Answer: B

15. SISO stands for:

- A) Serial-In Serial-Out
- B) Serial-In Parallel-Out
- C) Parallel-In Serial-Out
- D) Parallel-In Parallel-Out

Answer: A

16. PIPO stands for:

- A) Parallel-In Parallel-Out
- B) Parallel-In Serial-Out
- C) Serial-In Parallel-Out
- D) Serial-In Serial-Out

Answer: A

17. Which register converts serial data into parallel data?

- A) SISO
- B) SIPO

- C) PISO
- D) PIPO

Answer: B

18. Which register converts parallel data into serial data?

- A) PISO
- B) SIPO
- C) SISO
- D) PIPO

Answer: A

19. Which of the following is a sequential circuit?

- A) Decoder
- B) Encoder
- C) Counter
- D) Multiplexer

Answer: C

20. Flip-flops are edge-triggered devices in:

- A) Sequential circuits
- B) Combinational circuits
- C) Encoders
- D) Decoders

Answer: A

Unit-IV: Fill in the Blanks (20)

1. Sequential circuits have **memory**.
2. The basic storage element is a **latch**.
3. A flip-flop stores **one bit** of information.
4. The SR flip-flop has **two** inputs.
5. The D flip-flop is also called the **Data (Delay)** flip-flop.

6. The JK flip-flop eliminates the **invalid state** of the SR flip-flop.
7. The T flip-flop is mainly used in **counters**.
8. A Master-Slave JK flip-flop eliminates the **race-around** condition.
9. Synchronous sequential circuits require a **clock** signal.
10. An asynchronous counter is also called a **ripple** counter.
11. A synchronous counter has a **common** clock for all flip-flops.
12. A counter is used to count **clock pulses**.
13. A shift register is used for **data storage and shifting**.
14. SISO stands for **Serial-In Serial-Out**.
15. SIPO stands for **Serial-In Parallel-Out**.
16. PISO stands for **Parallel-In Serial-Out**.
17. PIPO stands for **Parallel-In Parallel-Out**.
18. Shift registers are built using **flip-flops**.
19. A D flip-flop has **one** data input.
20. Counters and shift registers are examples of **sequential logic circuits**.