

B.Sc. II Semester  
Paper VI (ELE-202), Digital Electronics-II  
Question Bank

1. With the help of neat logic diagram explain the working of S-R flip-flop using NAND gates only. Give its truth table and logic symbol.
2. With the help of neat logic diagram, explain the working of S-R flip-flop using NOR gates only. Give its truth table and logic symbol.
3. Describe the working of clocked SR flip flop using NOR gates. Explain how it is converted to D-type flip-flop.
4. Explain the working of negative edge triggered J-K flip flop with logic diagram. How is it converted to T-type flip-flop?
5. Explain the working of J-K flip flop with logic diagram using NAND gates only. Give its truth table and logic symbol.
6. Describe the working of 4-bit asynchronous counter with neat logic diagram. Draw its timing diagrams.
7. Describe the working of 3-bit synchronous counter with neat logic diagram. Draw its timing diagrams.
8. What is a decade counter? Explain the working of asynchronous decade counter with neat logic diagram. Draw its timing diagram.
9. What is a decade counter? Explain the working of synchronous decade counter with neat logic diagram. Draw its timing diagram.
10. Describe the working of R-2R ladder type D/A converter with the help of neat circuit diagram.
11. What is ROM? Explain in brief different types of ROM.
12. What is read/write memory? Explain static and dynamic RAMs.
13. With the help of neat logic diagram explain the working of parallel in serial out shift register.
14. With the help of neat logic diagram explain the working of parallel in parallel out shift register.
15. With the help of neat logic diagram explain the working of serial in serial out shift register.
16. With the help of neat logic diagram explain the working ring counter.
17. Draw the circuit diagram of DAC 0808 and explain its working.
18. Draw the circuit diagram of ADC 0801 and explain its working.
19. With a suitable diagram explain the working of successive approximation type analog to digital conversion.
20. With a suitable diagram explain the working of dual slope type analog to digital converter.

Multiple Choice Questions:

Chapter-I: Flip-flops:

1. In a sequential circuit, the output depends on
  - a) Present inputs
  - b) Past inputs
  - c) Present and past inputs
  - d) None of the above.
2. A simple flip flop is a
  - a) 1-bit storage cell
  - b) 2-bit storage cell
  - c) 3-bit storage cell
  - d) 4-bit storage cell
3. In R-S flip flop the input conditions i)  $R=1, S=0$  and ii)  $R=0, S=1$  are known as
  - a) Set and Reset
  - b) Reset and Set
  - c) Set and set
  - d) Reset and reset
4. In an R-S flip-flop, when  $R=S=1$ , the output is
  - a) 1
  - b) 0
  - c) infinite
  - d) indeterminate
5. In RS latch, the output is set to high, when
  - a) R is high, S is low
  - b) S is high, R is low
  - c) R is high, S is high
  - d) R is low, S is low
6. In RS latch, the output is reset to low, when
  - a) R is high, S is low
  - b) S is high, R is low
  - c) R is high, S is high
  - d) R is low, S is low
7. In a J-K flip-flop, a  $J=K=1$  produce the inactive state. This statement is
  - a) True
  - b) False

Chapter-II: Counters

1. The ripple counter functions as
  - a) 2:1 counter
  - b) n:1 counter
  - c)  $2^n:1$  counter
  - d)  $2^n$  counter
2. The number of flip-flops required in a decade counter is
  - a) 2
  - b) 3
  - c) 4
  - d) 10
3. A 3 flip-flop counter would divide the clock frequency by
  - a) 3
  - b) 6
  - c) 8
  - d) 10
4. A single clock pulse drives all the flip-flops in a
  - a) Ripple counter
  - b) Ring counter
  - c) Synchronous counter
  - d) asynchronous counter
5. A binary counter is made using
  - a) Latch
  - b) RS flip-flop
  - c) JK flip-flop
  - d) D flip-flop
6. The number of flip-flops required to build a mod-6 counter is
  - a) 3
  - b) 4
  - c) 5
  - d) 6
7. The highest count in a 4-bit ripple counter is
  - a) 32
  - b) 63
  - c) 15
  - d) 7
8. The number of flip-flops required in a decade counter is
  - a) 2
  - b) 3
  - c) 4
  - d) 10

### Chapter-III: Memories:

- Memories are
  - Volatile
  - Non volatile
  - Cheap and fast
  - Readily available
- Binary information can be stored in
  - A latch
  - A register
  - A RAM
  - All of above
- Semiconductor memories are
  - Volatile
  - Non Volatile
  - Volatile and small size
  - Non volatile and small size
- A semiconductor ROM is basically
  - A combinational circuit
  - A group of flip flops
  - A sequential circuit
  - None of the above
- The number of words which can be accessed by 6-bit address is
  - 36
  - 48
  - 64
  - 72
- Find the odd man in the following
  - ROM
  - RAM
  - PROM
  - EPROM
- The number of bits required to address 512 memory locations is
  - 8
  - 9
  - 10
  - 12

### Chapter-IV: A/D and D/A Converters

- In a 3 bit ladder with logic levels of 0=0V and 1=5V, the analog output for digital input 101 is
  - 1.0 V
  - 3.5V
  - 2.5V
  - 1.4V
- In a successive approximation A/D converter, the output of DAC relative to analog voltage should be
  - less
  - more
  - equal
  - any thing
- The fastest of the ADC is the
  - Dual slope type
  - Successive approximation ADC
  - Flash ADC
  - Counter controlled ADC