

**UNIT-I- NUMBER SYSTEM AND BOOLEAN ALGEBRA**

**PART-A & PART-B QUESTIONS**

1. State De-Morgan's Theorem and mentions its formula?
2. Covert  $(175)_8$  to decimal?
3. Define Tristate logic and draw the symbol and truth table of it?
4. Define Fan-in / Fan-out and propagation delay?
5. Mention the various types of number system used?
6. Define K-map?
7. Mention the laws of Boolean algebra?
8. Define universal gates and give an example?
9. How many variables are reduced in pair, quad and octet loops?
10. Explain excess 3 codes and BCD with example?
11. Explain don't care condition and redundant group with example?
12. Explain the handling precautions of CMOS ICs?
13. Explain the important parameters of various logic gates?
14. To realize AND, OR, and NOT gates by using only NOR gate?
15. Explain overlapping groups?
16. Draw the symbol and truth tables of all gates?
17. Define binary and octal number and its weights?
18. Comparison of TTL and CMOS logic families?

**PART-C QUESTIONS**

1. a) State and verify the De-Morgan's theorems?  
b) Convert  $(88)_{10}$  into hexadecimal?
2. Realization of all gates using NAND gate?
3. Realization of gates using NOR gate?
4. a) Explain Tristate logic?  
b) Explain the CMOS logic?
5. Explain TTL (Transistor – Transistor logic)?
6. a) Simplify the logic function by using K-Map,  $F = \sum(0,1,2,3,4,5,8,9,10,11,12)$   
b) Simplify the given logic function by using K-Map,  $F = \sum(0,1,2,3,4,5,8,9,10,11,12,14)$

**UNIT-II – COMBINATIONAL CIRCUITS**

**PART-A & PART-B QUESTIONS**

1. State MUX and DEMUX?
2. Define full adder and full subtractor?
3. Define half adder and half subtractor?
4. What is parity bit?
5. Define encoder and decoder?
6. Define even parity and odd parity?
7. Define arithmetic circuit?
8. Define BCD adder?
9. Define parity checker and generator?
10. Define serial and parallel adder?
11. Specify 1's complement and 2's complement number?
12. Explain signed binary numbers?
13. Explain parity checker?
14. Subtract  $11000011_2$  from  $10011101_2$  by using 2's complement method?
15. State the applications of MUX and DEMUX?
16. Draw the pattern of LED display?
17. Explain 2 to 1 MUX?
18. Explain 1 to 2 DEMUX?

**PART-C QUESTIONS**

1. With the diagram explain full subtractor and full adder?
2. Explain parity checker and generator?
3. Explain BCD adder with diagram?
4. Explain encoder and decoder?
5. Explain BCD to 7 segment decoder?
6. a) With the logic diagram explain the 1to8 DEMUX?  
b) With the logic diagram explain the 8to1 MUX?
7. Explain serial and parallel adder?

**UNIT-III- SEQUENTIAL CIRCUITS**

**PART-A & PART-B QUESTIONS**

1. Define sequential circuit?
2. Mention the various types of flip flops?
3. Define synchronous and asynchronous counters?
4. What is flip flop and mention its conditions?
5. Define No change and toggle conditions?
6. Which flip-flop is called by divided by 2 counter?
7. What is counter?
8. Draw the logic diagram of JKMS FF?
9. Define race around condition?
10. Define shift register and mention its types?
11. Define Triggering and types of triggering?
12. How race around condition is avoided in flip-flop?
13. State the difference between asynchronous and synchronous FF?
14. Explain MOD 3 counter?
15. Define Ring counter and Johnson counter?
16. Draw the logic diagram of 4 bit ripple counter?
17. Draw the logic diagram of 4 bit up/down counter?

**PART-C QUESTIONS**

1. With the logic circuit explain the operation of 4 bit ripple up/down counter?
2. With the logic diagram explain the operation of 4 bit synchronous down counter?
3. a) Explain Johnson counter?  
b) Explain Ring counter?
4. With the logic diagram explain the serial-in and parallel-out, and serial –in serial-out modes of operations of shift register?
5. a) Explain JK FF?  
b) Explain decade counter?

**UNIT- IV - MEMORY DEVICES**

**PART-A & PART-B QUESTIONS**

1. State the different types of memory?
2. Expand DDR RAM and EEPROM?
3. Differentiate RAM and ROM?
4. Define static RAM and dynamic RAM?
5. What are the major components used in Bipolar RAM?
6. Define volatile memory and give examples?
7. Define anti-fuse technology?
8. Define flash memory?
9. What is SD RAM?
10. Differentiate DRAM and SRAM?
11. What is capacity and memory cell?
12. Explain semiconductor memory?
13. How is memory classified?
14. Explain Bipolar RAM cell?
15. State the difference between Bipolar RAM and MOSRAM?
16. Explain ROM, PROM, and EPROM?

**PART-C QUESTIONS**

1. Explain RAM organization (OR) read/write operation of RAM memory?
2. With the diagram explain Bipolar RAM cell?
3. a) Explain SD RAM?  
b) Explain DDR RAM?
4. Explain the organization of ROM?
5. a) Explain how memory is expanded?  
b) Explain EEPROM?
6. a) How is memory classified?  
b) Explain EPROM?
7. a) Explain Anti-fuse technology?  
b) Explain Flash memory?



**UNIT- V - MICROPROCESSOR - 8085**

**PART-A & PART-B QUESTIONS**

1. Define is Microprocessor and CPU?
2. What is the difference between bit and byte?
3. Define assembler and peripherals?
4. Define mnemonic and assembler?
5. Mention the name of general purpose registers used in 8085?
6. Define program counter and stack pointer?
7. Define interrupt and mention the various types of interrupts?
8. Define accumulator and its uses?
9. How is an instruction of 8085 classified according to their length and operation?
10. Define timing diagram?
11. Draw the pin diagram of 8085?
12. Explain direct and indirect addressing?
13. Explain branching instructions?
14. Explain the conditional flags used in 8085?
15. Explain RRC and RAL instructions?
16. Explain PUSH and POP?
17. Explain I/O mapped I/O?
18. Explain machine cycle of 8085?

**PART-C QUESTIONS**

1. Architecture of microprocessor 8085?
2. Explain the different types of addressing modes used in microprocessor 8085?
3. Explain the classification of instructions?
4. I/O mapped I/O and Memory mapped I/O?
5. a) Pin diagram of 8085 and explain its pins?  
b) Evolution of microprocessor?
6. Timing diagram of MOV r1, r2 instruction?
7. Various types of interrupts?
8. Explain the data transfer instruction and logical instruction?