

**SHORT QUESTION:-**

- 1) Construct the truth table of NAND and XOR gate.
- 2) Convert the following hexadecimal numbers to binary.
  - 1) F297     ii. E79A.6A4
- 3) Simplify the expression  $F = BD + BCD' + AB'C'D'$
- 4) Which codes are known as self-correcting codes and why?
- 5) State De- Morgan's theorem.
- 6) Write down the truth table of a 2 input Exclusive-OR gate?
- 7) Solve  $(1010)_2 - (1010)_2$  using 1's complement.

**LONG QUESTIONS:**

- 1) Obtain the real minimal expression for  $f = \sum m(0,2,4,6,7,8,10,12,13,15)$  and implement it using universal gates.
- 2) Given  $(AB)' + A'B = C$ , Find  $(AC)' + A'C$ .
- 3) Which gates are referred to as universal gates and why? How other gates can be realized using NOR gates?
- 4) Realized the all other gate using NAND gate.
- 5) Simplify and minimize the four variable logic expression using k-map  
 $F(A,B,C,D) = \sum M(2,3,4,5) + d(10,11,12,13,14,15)$

## CHAPTER-2

### (COMBINATIONAL LOGIC CIRCUIT)

#### SHORT QUESTION:-

- 1) Why is a multiplexer called a data selector?
- 2) Why de-multiplexers are referred to as data distributors?
- 3) What is encoder and decoder?
- 4) How many selection lines needed for 4:1 multiplexer?
- 5) Draw the full adder circuit using two half-adder?
- 6) write the truth table of half-adder circuit?

#### LONG QUESTIONS:

- 1) Discuss half adder circuit, truth table and implement by using NOR gate.
- 2) Explain the working of 4:2 encoder with diagram.
- 3) Design a 2 bit comparator circuit whose outputs are  $P > Q$ ,  $P < Q$  and  $P = Q$  where P and Q are each two bit numbers.
- 4) Explain the working of 4:2 decoder with diagram.
- 5) Design 1:4 De-mux?
- 6) Design 3:8 decoder?
- 7) Design Full Subtractor?

## CHAPTER-3

### (SEQUENTIAL LOGIC CIRCUIT)

#### SHORT QUESTION:-

- 1) Define racing condition.
- 2) What do you mean by toggling?
- 3) Write down the transition table for D-flipflop.
- 4) What is modulus of a counter?
- 5) What are the difference between Synchronous and Asynchronous counter?
- 6) write the Truth table of S-R flipflop?
- 7) How many clock pulse a 4-bit counter can count?

### LONG QUESTIONS:

- 1) With neat diagram explain the working of serial-in serial-out and parallel-in serial-out shift registers with truth table.
- 2) Draw the circuit diagram of edge triggered JK flip-flop and explain its operation with the help of a truth table. How is the race around condition eliminated?
- 3) With a neat diagram explain the operation of SISO and PIPO register.
- 4) Show the logic diagram of a clocked SR flip flop. Explain its working with a functional table.
- 5) Design a MOD-10 counter and explain it.
- 6) Design 4-bit asynchronous counter and Explain it?

## CHAPTER-4

### (8085 MICROPROCESSOR)

#### SHORT QUESTION:-

- 1) What is the function of ALU in 8085 microprocessor?
- 2) What do you mean by program counter?
- 3) Define opcode and operand.
- 4) Write down the function of following signal of 8085.
  - i. HOLD
  - ii.  $S_0$  &  $S_1$
- 5) How many machine cycles are required by the following instructions of 8085?
  - a. IN 08H;
  - b. LXI H, 2450H;
  - c. MVI B,15H;
  - d. MOV C,M;
- 6) Give 2 example of instructions for data transfer group and logical group.

#### LONG QUESTIONS:

- 1) Define stack, stack top and stack pointer and why it is essential.
- 2) Draw the timing diagram of MOV A instruction of 8085 microprocessor with neat sketch.
- 3) Write an assembly language program for addition of two 8-bit number and sum is 16-bit using 8085 instructions.
- 4) Draw the functional block diagram of 8085 microprocessor and explain function of each block.
- 5) What are various status flags provided in 8085 microprocessor and discuss their role.

- 6) Draw the timing diagram for the instruction MVI C,12H.
- 7) Write an assembly language program to add two 8-bit numbers, the sum may be of 16 bits.
- 8) With a neat block diagram explain the architecture of 8085 microprocessor and explain function of each block.
- 9) Explain different addressing modes of 8085 microprocessor with examples.

## **CHAPTER-5**

### **(INTERFACING AND CHIPS)**

#### **SHORT QUESTION:-**

- 1) What are different operating modes of 8255?
- 2) Why interfacing is required in microprocessor?

#### **LONG QUESTIONS:**

- 1) Design a traffic light controller with a neat interfacing diagram with 8085 instruction and explain it.
- 2) Draw the block diagram of PPI 8255 and describe each block.
- 3) Write assembly language program for Seven segment display and Explain it?