UNIT-1

1. Explain the various types of buses used in 8085 microprocessor?
2. Define the tristate logic & explain the function of following devices?
   • Buffer
   • Decoder
   • Encoder
   • latch
3. Draw the Block diagram of a computer & a microcomputer. Explain the difference b/w them?
4. What is the Function of an accumulator?

UNIT-2

1. Describe the Programming modal of 8085 & Explain function of various registers?
2. Describe the externally initiated signal, control & status signal & interrupts of 8085 microprocessor?
3. Explain the Following
   • Fetch & execute operation
   • Need to demultiplex the bus AD7-AD0
   • Externally initiated operation
4. Difference b/w memory mapped I/O & peripheral or I/O mapped schemes of interfacing I/O devices?
5. Difference b/w absolute v/s linear decoding of address?
6. Describe the block diagram of 8085 & explain the working of each ckt in detail?
7. Interface 1k bytes of R/W memory to an 8085 system with the memory map from 3000H to 33FFH.
8. Discuss the interrupt structure of 8085 microprocessor?
9. What do you mean by masking of interrupts? Explain SIM instruction
10. How more than 5 interrupt can be handled in 8085?
11. Explain the Significance of flag?
12. Explain the addressing modes supported by 8085 microprocessor?
13. How many address lines are necessary on the chip of 2k byte memory?
14. Write short note on interrupt controlled I/O?
UNIT-3

1. Draw the timing diagram for execution of the instruction STA. 8000H.

2. Explain the Following terms
   - T-State
   - Machine cycle
   - Instruction cycle

3. WAP to arrange 10 bytes of data in ascending order. The data is stored in memory location as an array starting from C 100H onwards.

4. Define the Following
   - Mnemonics
   - Instruction
   - Word
   - program

5. Write a delay subroutine program that will produce a delay 10 m sec.

6. Explain read interrupt mask and SIM Instruction.

7. (a) Write an assembly language program with comments to find the highest integer among the given list of data byte stored in the memory. Also draw its flow chart.

   (b) Explain the following instruction of 8085 microprocessor with suitable

   (i) STAX B     (ii) XTHL     (iii) DAD SP    (iv) MOV A,M

8. Load the data byte 8 EH in register D and F7H in register E. Mask the higher order bits (D₇ - D₄) from both the data bytes, EX-OR the low order bit (D₃ - D₀) and displays the result.

9. Write a programmed to perform the following functions.
   (a) Clear all the flags
   (b) Load 00 H in accumulator and show that (ZF) zero flag is unaffected.
   (c) Logically OR the accumulator with itself to set the ZF and store all the flags on stack.

10. A set of ten packed BCD numbers is stored in the memory location starting at XX 50 H. Write a program with a subroutine to add these numbers in BCD. If a carry is generated, save in register B and adjust it for BCD. Final sum is less than 9999_{BCD}.

11. Identify the RST instructions in given figure. Specify the restart memory location when the μp is interrupted. If the instruction written at this location is JMP20B5H and subroutines is written at 2075H, What instruction must be written at 20 BF?
12. Write an assembly language delay subroutine to provide a time delay of 0.5 ms for an 8085 microprocessor operating at 2 MHz frequency.

13. Write an assembly language program to ADD a memory block of 10 bytes starting from 2000 H and store the sum in the memory at 200 FH locations. If carry generated, store the carry at 2010 H location.

14. Frame control word to generate symmetrical square wave (mode-2) of 60 µ sec. time period using counter 1.

15. Write a program to:
   (i) Clear the accumulator
   (ii) increase A by one
   (iii) add 94H to A
   (iv) Store 42 register B
   (v) Subtract the content of register B from A
   (vi) Display the result on output port 81H

16. Write short note on Stack and Subroutine instructions.

17. Load the bit pattern 91H in register B and 87H in register C. Mask all the bits except $D_0$, is a logic 1 in both registers turn on the light connected to $D_0$ of port 01H otherwise turn off the light.

18. Write short note on Restart instructions.

19. Explain the following:
   (i) Instruction set of microprocessor
   (ii) Stack and subroutine operation.
   (iii) Counters and time delay
   (iv) Rotate operations.
UNIT-4


2. What are the different modes of operation of 8253 programmable timer? Explain with the help of waveform.

3. Write short note on keyboard and display interfaces.

4. (a) Draw the block diagram of programmable interval timer 8253 and explain its various blocks.

   (b) Explain 8259 chip with diagram and also give its application.

5. Design an interfacing circuit to read data from an A/D converter using the 8255 in the memory mapped I/O with address range 8000-8003 H. Set up port A to read data, PCₐ to start conversion and PC₇ to read the read status of the converter. Write necessary instruction?

6. Explain the bi-directional data transfer mode (mode-2) of 8255?

7. Draw internal block diagram of 8257DMA controller and explain the process of data transfer from peripheral to the system memory.

8. Draw internal block diagram of 8251-A USART and explain its initialization process?

9. Write comparison between memory mapped I/O and peripheral mapped I/O.

10. Draw block diagram of 8255 and explain its various modes of operation.

11. An 8255 is interfaced in memory mapped I/O so that its address range is 8000 H to 8003 H. Frame the control word for the following configuration.

   Port A: Input in mode 0; Port B: Output in mode 0

   Port C₀: I/P; Port C₁: O/P

   Write instructions to initialize the 8255.

12. Draw block diagram of programmable interrupt controller.

13. Write the maximum number of interrupt controllers that can be connected in cascade mode.

14. Specify the 8085 peripheral I/O instructions and explain why the peripheral I/O techniques are limited to 256 output peripherals.

15. Explain the interfacing of 8257 with 8085.
UNIT-5

1. Memory organization of 8051.

2. (a) Draw the internal architecture of 8051. Explain various blocks with RAM organization.

   (b) Give the addressing modes supported by 8051. Explain them in brief.

3. Write short note on interrupts of 8051.

4. Draw the internal architecture of 8051 Microcontroller and describe its silent features?

5. Define delay routine?

6. Write short notes on any two:

   (i) Register set of 8051

   (ii) Interrupts of 8051

   (iii) Application of 8051.

7. Compare the difference between a microprocessor and microcontroller based system.

8. Give the architecture details of 8051 micro controllers.

9. Discuss the following about 8051:

   (a) There is how many register banks?

   (b) What are the various sources of interrupts?

   (c) What are the different addressing modes?

   (D) What are SFRs? Are they bit addressable?