DESCRIPTIVE QUESTIONS

UNIT-I

1. a) Explain the different registers in 8086 and also discuss the flag register contents.
   b) Draw the internal architecture of 8086 and explain each block in detail.
2. Explain the different addressing modes of 8086.
3. Explain the following instructions with examples.
   (i) AAA (ii) NEG (iii) DAS (iv) MOV (v) SHR (vi) ROL
4. Explain the different types of Assembler directives.
5. Explain the concept of procedures and macros with examples.

UNIT-II

1. a) Write an assembly language program to sort the array in descending order.
   b) Write an assembly language program to exchange a block of data from source location to destination location.
2. a) Write an assembly language program to sort the array in ascending order.
   b) Write an assembly language program to add two 16-bit packed BCD numbers.
3. a) Write an assembly language program to find the sum of first 'n' integers.
   b) Explain sorting with an example.
4. a) Write an assembly language program to subtract two 16-bit numbers.
   b) Write an assembly language program to count the number of even and odd numbers from a 16-bit hexadecimal.
5. a) Write an assembly language program to find the biggest number in an array of 10 numbers.
   b) Write an assembly language program to divide a 16-bit number by a 3-bit number.
6. a) Write an assembly language program to write 5 bytes of data in an array by making use of procedure.
   b) Write an assembly language program to subtract two 8-bit hexadecimal numbers.

UNIT-III

1. Explain the pin configuration of 8086.
2. Explain the bus timing diagram of minimum mode with neat sketch.

3. Explain the bus timing diagram of maximum mode with neat sketch.
4. What is memory interfacing to 8086? Explain the different types of semiconductor memories.
5. What is DMA? Explain the need for DMA in the data transfer control.
6. Explain the internal architecture of 8257.
7. a) Explain the pin diagram of 8257.
   b) What are the different modes of operation of 8257? Explain.

UNIT-IV

1. With a neat block diagram explain the internal architecture of 8255.
2. a) Explain the pin configuration of 8255.
   b) Explain the various operating modes of 8255.
3. a) Interface Stepper motor to the 8086 and write and ALP to control the stepper motor.
   b) Interface a typical DAC of 12-bit with 8255 and write a program to generate triangular waveform of period 10ms. The CPU runs at 5MHz clock frequency.
4. Explain the different display controllers.
5. Draw the control word formats for BSR mode and mode definition mode.
6. Explain the interrupt structure of 8086? Explain why an IRET instruction is used at the end of ISR.
7. a) Explain the 8279 keyboard interfacing.
   b) Write a program to initialize 8255 in the configuration given below:
      i. Port A : Output with Handshake
      ii. Port B : Input with Handshake
      iii. Port C_L : Output
      iv. Port C_U : Input

UNIT-V

1. Explain about the asynchronous and synchronous data transfer schemes.
2. Explain the 8251A control word formats and also the status registers.
3. Write the sequence of instructions required to initialize 8251 at address A0H and A1H for the configuration given below.
   (i) Character length – 8 bits (ii) Even parity (iii) Start bits – 1 ½
   (iv) Baud rate – 16X (v) DTR and RTS asserted (vi) Error flag reset
4. Explain the internal architecture of 8251 with neat diagram.
5. Explain the pin configuration of 8251.
6. Explain about the serial communication standard RS232C

UNIT-VI

1. Explain the block diagram of 8259.
2. Explain the priority modes and other features of 8259.
3. Explain the initialization and operational commands words of 8259.
4. Write the initialization instructions for 8259A interrupt controller to meet the following specifications.
   (i) Interrupt type – 32 (ii) Edge, triggered, single and ICW4 needed
   (iii) Mask interrupts IR_1 and IR_3
5. Explain the block diagram of programmable interval time 8254.
6. Explain the operational description or control word format of 8254

UNIT-VII

1. a) Distinguish between a microprocessor and microcontroller.
   b) With a neat sketch discuss the internal architecture of 8051.
2. Explain the pin diagram of 8051.
3. Explain the serial port operation and interrupt structure of 8051.
4. Explain the addressing modes of 8051.
5. 8051 uses 11.0592MHz crystal to get 9600Hz baud rate, how will you program it for serial communication.
6. Explain the timers/counters and program status word of 8051.

UNIT-VIII

1. Explain the addressing modes of MCS-96 microcontroller.
2. Explain the important features of ARM microcontroller.
3. Explain about ARM core and ARM core data flow model with neat diagram.
4. Briefly explain about the ARM programming model.
5. Explain the program status registers of ARM microcontroller.
6. Explain the different versions of ARM.