The Intel Microprocessor 8086 Architecture:

1) Explain memory banking in 8086.
2) Give the advantages of memory segmentation of 8086 microprocessors.
3) Explain Segmentation of 8086 microprocessors. Give its advantages.
4) Draw and explain demultiplexing of address bus in 8086.
5) Draw and explain maximum mode configuration 8086 system. - 2
6) Draw and explain memory read and memory write machine cycle timing diagrams in maximum mode of 8086.
7) Draw and explain memory read machine cycle timing diagram in minimum mode of 8086. - 2
8) Explain minimum mode configuration of 8086 microprocessors. - 3
9) Explain the following instructions in 8086 : LAHF and XLAT
10) Design 8086 based system for the following requirements
    i) 8086 working in minimum mode with 8MHz.
    ii) 64 KB EROM using 32 KB * 8 devices
    iii) 128 KB RAM using 64 KB * 8 devices - 2
11) Design 8086 based system for following specifications: 10
    i) 8086 in minimum mode with clock frequency 5MHz.
    ii) 128 KB EPROM using 32KB*8 chips
    iii) 32 KB RAM using 16KB*8 chips
12) Explain and draw IVT. Differentiate between hardware and software interrupt.
13) Explain the following:
    i) Types of interrupts 05
    ii) Modes of 8253 Programmable Interval timer

Instruction Set and Programming:

1) Explain different addressing modes of 8086 microprocessors. - 3
2) Write an assembly language program to print the flag registers.
3) Differentiate Procedure and macro with example - 2
4) Write a short note on mixed language programming
5) Write a program to find the largest number from an array
6) Write a 8086 assembly language program with appropriate comments, to find if the given year is a leap year or not
7) Write a program to find the factorial of a number using procedure.
8) Write addressing modes of the following instructions
    i) MOV AX, [BX+SI]
    ii) AND CL,[2000]
    iii) IN AL, DX
    iv) JMP [BX+2]
    v) ADD AX,[BX+SI+5]

Memory and Peripheral Interfacing:

1) Explain the interrupt structure of the 8086 microprocessor.
2) Explain the Initialization Command Words (ICW's) and Operational Commands Words (OCWs) of the 8259 PIC. - 2
3) Draw the block diagram of PIC8259 and discuss its operation
4) Explain the operation of three 8259 PIC in cascaded mode.
5) Explain Strobed Bi-directional I/O Mode 2 operation of 8255 PPI with control word and timing diagram.
6) Explain BSR mode of 8255 PPI
7) Draw and explain the block diagram of 8255 Programmable Peripheral Interface (PPI) with control word formats.
8) Explain the I/O mode control word formats of 8255 PPI.
9) Explain data transfer modes of DMAC 8257.
10) Draw and explain the block diagram of 8257 DMA Controller.

Intel 80386DX Processor:

1) Explain the protection mechanism of 80386 with a diagram.
2) Explain descriptors and paging mechanisms in protected mode of 80386.
3) Explain the modes of operation of 80386.
4) Explain the flag registers of 80386.
5) Explain VM, RF, IOPL, NT and TF flags of 80386 microprocessor - 2
6) Differentiate real mode, protected mode and virtual mode of 80386 Microprocessor - 2

Pentium Processor:

1) Explain integer and floating point pipeline of Pentium.
2) Explain Branch Prediction logic used in Pentium Processor.
3) Explain an instruction issue algorithm of Pentium Processor. - 2
4) Explain how flushing of pipeline problem is minimised in Pentium architecture.
5) Explain cache organisation of Pentium processor.

Pentium 4:

1) Explain Pentium 4 Net Burst microarchitecture and write short notesE on hyperthreading.