

(3 Hours)

[80 Marks]

**N.B.** 1) Question No. 1 is compulsory.

2) Attempt any **three** questions out of remaining.

3) Assume suitable data wherever necessary and state them clearly.

- Q.1 a) Give the advantages of memory segmentation of 8086 microprocessor. 05  
 b) Differentiate Procedure and macro with example. 05  
 c) Explain VM, RF, IOPL and NT flags of 80386 microprocessor. 05  
 d) Explain an instruction issue algorithm of Pentium processor. 05
- Q. 2 a) Explain minimum mode configuration of 8086 microprocessor 10  
 b) Explain cache organization of Pentium processor. 10
- Q. 3 a) i) Write a short note on mixed language programming. 05  
 ii) Write a program to find the largest number from an array. 05  
 b) Draw and explain the block diagram of 8255 Programmable Peripheral Interface (PPI) with control word formats. 10
- Q.4 a) Differentiate Real Mode, Protected Mode and virtual 8086 mode of 80386 microprocessor. 10  
 b) 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
- Q.5 a) Explain different addressing modes of 8086 microprocessor. 10  
 b) Explain the operation of three 8259 PIC in cascaded mode. 10
- Q.6 a) Draw and explain memory read and memory write machine cycle timing diagrams in maximum mode of 8086. 10  
 b) Explain the following:  
 i) Types of interrupts 05  
 ii) Modes of 8253 Programmable Interval timer 05

\*\*\*\*\*