

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

(2) Attempt any **four** questions out of the remaining **six** questions.

1. Design a 8086 microprocessor based system in minimum mode with following specification :- 20

- (a) 64 K bytes EPROM using 16 K bytes devices.
- (b) 16 K bytes RAM using 4 K bytes devices.
- (c) Two 8 bits I/O ports using 8255 PPI

Draw a neat schematic and memory and I/O maps.

2. Explain the interrupt structure of 8086 in details Highlights the use of predefined interrupts. 20
Discuss the priority structure of the interrupts with typical examples.

3. (a) Explain various addressing modes of 8086 microprocessor with suitable example. 10
(b) What are different function blocks in 8259 programmable interrupt controller ? 10
Explain the role of 1RR, 1SR, 1MR and priority resolves in process of interrupt handling.

4. Design 8751 based system with following specifications :- 20

- (a) Microcontroller working at 6 MHz
- (b) 16 KB EPROM
- (c) 4 KB RAM
- (d) 2 I/O ports use 8255

Draw neat diagram and address map.

5. (a) Draw interface of 8086-8087 and explain its working. 10
(b) What are loosely coupled and closely coupled systems ? Give example of each one and explain their working. 10

6. (a) Write a program using 8051 instruction which generates a square wave of 2 KHz. (Assume clock frequency of controller 12 MHz.) 10
(b) Explain the physical structure of I/O ports of 8051 microcontroller. 10

7. Write a short notes on the following :- 20

- (a) Addressing modes of 8051 with examples
- (b) Data types of 8087
- (c) Mixed language programming C and Assembly for 8086
- (d) Power saving modes of 8051.