

Con. 3226-08.

(REVISED COURSE)

CO-9992

(3 Hours)

[Total Marks : 100

N.B. : (1) Question No. 1 is **compulsory**.(2) Attempt any **four** questions out of the remaining.(3) **Figures** to the **right** indicate **full** marks.(4) Assume **suitable** data if **necessary** with justification.(5) Give **proper** comments to **assembly** language **program**.

1. Design a 8086 based microprocessor system with following specifications :- 20
 - (a) 8086 microprocessor working at 5 MHz.
 - (b) 8087 co-processor for numeric calculations.
 - (c) 64 KB of Monitor program area using 2764 chips.
 - (d) 128 KB of application program area using 62256 chips.
 - (e) 2 input and 2 output 16-bit ports using 8255 chips in hand-shake mode, which should be accessed in fixed-port addressing mode. Explain the design. Draw memory map and I/O map. Use absolute decoding technique through out the design.

2. (a) Explain the different types of addressing modes in 8086. 10
 (b) Draw timing diagram for :- 10
 - (i) Memory Read operation in maximum mode.
 - (ii) Interrupt Acknowledge in minimum mode.

3. (a) Draw functional block diagram of 8259 and explain its working. 10
 (b) Draw functional block diagram of 8254 (PIC/T) and explain its working. 10

4. (a) With the help of a neat diagram explain 8086-8087 interface. Highlight the important signals of the interface. 10
 (b) Discuss the control and status word format of Numeric processor 8087. 5
 (c) Convert (305.1070) decimal in long real and temporary real format. 5

5. (a) Write a program for 8086 to arrange a string of bytes in ascending order. 10
 (b) What do you mean by multiprocessor system ? What are different, multiprocessor configurations supported by 8086 ? Draw neat diagrams. 10

6. (a) Explain the different types of bus arbitration techniques used in multiprocessor systems. 15
 (b) Explain operations of following pins of 8259 : 5
 - (i) CAS ϕ -2
 - (ii) \overline{SP} / \overline{EN}
 - (iii) INT.

7. Write short notes on (any two) :- 20
 - (a) IEEE 488 GPIB
 - (b) 8288 Bus Controller
 - (c) Interfacing of DRAM to 8086.