Con. 1751-06 (REVISED COURSE) TV-8304

(3 Hours) [Total Marks : 100

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

1. Design a 8086 microprocessor based system to meet the following requirements 20
   (a) 8086 microprocessor working at 6 MHz
   (b) 8087 co-processor
   (c) 64 KB Monitor Program area using 2764 chip.
   (d) 64 KB Application Program area using 6264 chip.
   (e) 2 Input and 2 Output ports of 16–Bits each, which can be used in hand-shaking mode.
   Explain the design. Draw Memory and IO maps. Give Memory and IO address table. Use absolute address decoding technique.

2. (a) Draw Functional block diagram of 8259 and explain it's working. 10
   (b) Draw Interfacing diagram of 3 Programmable Interrupt Controllers connected to 8986 which is working in minimum mode and explain the working with CPU. 10

3. (a) Explain the interrupt structure of 8086 microprocessor. 10
   (b) Assume that TF and IF are set to 1 and NMI as well as INTR interrupts occur simultoneously, which interrupt will be accepted ? Will ISR be single-stepped ? 10

4. (a) Explain data formats supported by 8087 co-processor. 10
   (b) Convert the following decimal numbers into short-real format : 10
   (i) –67·71875 (ii) +0·080078125

5. (a) Explain different addressing modes of 8086 microprocessor stating it's advantages and disadvantages. 10
   (b) Write on assembly language program to subtract 10-Digit decimal numbers which are stored at memory location $10,000_H$ and $10,005_H$ respectively with least significant digit at first and most significant digit at last. Store the result at memory location $10,010_H$ on words with LSD at start and MSD at last. 10

6. (a) Explain different types of bus arbitration techniques used in multiprocessor systems. 15
   (b) Draw timing diagram of INTA machine cycle of 8086 CPU working in maximum mode and explain it's working. 5

7. Write short notes on any **two** of the following :– 20
   (a) 8288 Bus Controller
   (b) Modes of 8254
   (c) Functional block diagram of 8087 and its working with host.