(OLD COURSE)   QP Code : **12022**

(3 Hours)   [Total Marks : 100

N.B. (1) Question No .**1** is **compulsory**.
    (2) Solve any **four** of the remaining **six** questions.

1. (a) Explain the operation of IC 8254 as a square wave generator with the control word **5** and timing diagram for count value of 4.
   (b) Explain following addressing modes of Intel 8086. Write an instruction for each **5** mode.
       (i) Direct addressing mode
       (ii) Relative Base Indexed.
   (c) Explain the operation of IC 8259 with the block diagram. Explain all the sigmas in **10** detail.

2. (a) What is segmented memory ? Enumerate the advantages of segmented memory **10** with reference to the 8086 microprocessor.
   (b) Compare the 8085 and the 8086 microprocessor with respect to architecture, in- **10** struction set, speed etc. (At least 8 points)

3. (a) Explain the necessity of a Bus controller in the 8086 maximum mode system. Also **10** explain the 8288 Bus controller in detail.
   (b) Show an interfacing diagram of the 8086 with the 8237 DMA controller. What are **10** the advantages of direct memory access ? Enumerate with two practical examples.

4. (a) Explain the addressing modes of 8085 microprocessor. **10**
   (b) What are the various modes of operation of 8255 PPI **10**

5. Explain the need of Bus arbitration. What are the various Bus arbitration schemes in **20** loosely coupled systems ? Draw a loosely coupled systems ? Draw a multiprocessor system of 2-8086 modules using the 8289 Bus arbitor. Explain the diagram.

6. (a) Design 8086 Based system with following specifications. **10**
       (i) Interface 32KB SRAM. Use IC 6264.
       (ii) Interface 16KB ROM. Use 8 KB chips.
   (b) Write an assembly language program for Intel 8086 processor to perform the **5** division of 2 digit BCD number which is in unpacked form.
   (c) Explain the fully nested mode of PIC 8259. **5**

7. Write short note on (any **four**) : – **20**
       (a) IEEE – 488 GPIB standard.
       (b) Comparison between SRAM & DRAM
       (c) Serial communication using RS-232C
       (d) Modes of operation of the 8253 PIT.
       (e) Difference between memory mapped I/O & I/O mapped I/O.

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