Sem IV IT 01|12|12

Microprocessor & Microcontroller

61 : 2nd half-12-(f) JP

Con. 7869-12. **KR–7178**

(3 Hours) **[Total Marks : 100**

N.B.: (1) Question No. **1** is **compulsory**.
(2) Solve any **four** out of the remaining **six** questions.
(3) Draw neat **diagrams** wherever **required**.

1. Design an 8086 based system to interface :— **20**
   (a) 64 KB RAM using 62256 chips
   (b) 64 KB EPROM using 27256 chips
   (c) 2 16-bit input and output ports in handshake mode.

   For the above specifications :—
   (i) Draw the memory map and input-output map
   (ii) Draw the necessary interfacing diagram
   (iii) Explain the concept of using absolute decoding
   (iv) Draw the interfacing diagram and explain the same.

2. (a) Explain the Timer/Counters of IC 8051. **10**
   (b) Interface 8051 with 8255 PPI. Explain its interfacing diagram and hence explain the port structure of 8051. **10**

3. (a) Explain the addressing modes of 8086 with examples. **10**
   (b) Explain the following instructions of 8086 – **10**
   INTO, CMP, STOS, MOV, ADC.

4. (a) Explain how parameters are passed to a procedure. Also write an 8086 based assembly language program to generate a delay of 100 M secs. Assume system frequency to be 10 MHz. **10**
   (b) Draw the schematic of maximum mode of operation of 8086 and hence compare minimum and maximum mode of 8086. **10**

5. (a) Write an assembly language program for 8051 micro-controller to generate a square wave of 2 KHz on pin 1·0 assuming crystal frequency of 12 MHz. Justify the mode of operation. **10**
   (b) Explain what is meant by segmented memory. State its advantages and disadvantages (if any) and hence explain the logical and physical address in 8086 with example. **10**

6. (a) Explain the hardware and software interrupts of 8051 micro-controller. **10**
   (b) Explain the register set of 8086. Also explain the flags of 8086 in detail. **10**

7. Write short notes on :— **20**
   (a) Watchdog timer of PIC
   (b) Serial communication of 8051
   (c) Assembles directives
   (d) Jump instructions of 8051 μC.