(b) What is the difference between software-triggered strobe and hardware triggered strobe in 8253 (with the help of timing diagram)? 6

6. (a) Explain the following terms with respect to Sample and Hold circuits :

(i) Acquisition time

(ii) Aperture time

(iii) Droop rate

Also explain the parameters which should be considered while selecting the capacitor for Sample and Hold circuit. 7

(b) With the help of an interfacing diagram, discuss the details of connecting ADC 0800 to a microcomputer system. 7

7. (a) Discuss the concept of pipeline architecture. Also explain how it is implemented in Intel 8086. What is the use of bus controller in maximum mode of Intel 8086? 6

(b) Explain various addressing modes supported by Intel 8086. 8

Code : 031611

B.Tech 6th Semester Exam., 2015

MICROPROCESSOR AND ITS APPLICATION

Time : 3 hours *Full Marks* : 70

Instructions :

(i) *The marks are indicated in the right-hand margin.*

(ii) *There are* ***NINE*** *questions in this paper.*

(iii) *Attempt* ***FIVE*** *questions in all.*

(iv) *Question No.* ***1*** *is compulsory.*

1. Answer any *seven* of the following : 2×7=14

(a) What is the maximum I/O addressing capacity of 8085?

(b) Why should program counter in 8085 be a 16-bit binary counter?

(c) Which status does the status signal in 8085 reflect?

(d) What is the addressing mode of CMA instruction?

(e) What is the status of A_8-A_{15} pins during the execution of IN instruction?

(f) Write the order of interrupt priority in 8085.

(g) What are the two functions for which SIM instruction is used?

(h) What is the address of Port A of 8255, if the address of the control register is 83H?

(i) How many machine cycles are required for MOV A, M?

(j) What is the maximum memory addressing capacity of 8086?

2. (a) Discuss the functions of various types of buses available in Intel 8085. Why is multiplexing of lower-order address bus and data bus done in Intel 8085? 6

(b) Explain the functions of the following signals in 8085 : 8

(i) ALE
(ii) IO/$\overline{M}$
(iii) HOLD
(iv) SID
(v) X_1, X_2
(vi) INTR
(vii) RESET OUT
(viii) $\overline{RD}$

(Continued)

3. (a) Draw and discuss the timing diagram of memory read cycle. Define and differentiate among T-state, machine cycle and instruction cycle. 7

(b) Write an 8085 assembly language program to find out the lowest and the highest number in a data array. The bytes of data array are stored starting from the memory location DATA. The size of data array is stored at memory location ARRAY. Store the highest number obtained at memory location NUM1 and the lowest number obtained at memory location NUM2. 7

4. (a) Discuss the differences between memory-mapped I/O and I/O-mapped I/O. 6

(b) Explain with the help of a block diagram how a DMA controller operates in a microcomputer-based system. Explain why DMA-based data transfer is faster than I/O-based data transfer. 8

5. (a) Explain the processes of input handshaking and output handshaking in Intel 8255. What is the special feature of Port A of 8255? Which are the handshaking signals involved? 8

(Turn Over)