

T.E. Sem V (Old) (Computer)
Microprocessor
(OLD COURSE)

19/5/15

QP Code : 3786

(3 Hours)

[Total Marks : 100

- N. B. :** (1) Question 1 is compulsory.
(2) Attempt any four from remaining.
(3) **Figures** to the **right** indicate **full** marks.

1. Design 8086 based microprocessor system with following specifications. 20
 - (i) 8086 microprocessor working at 10 MHz.
 - (ii) 32 KB of EPROM using 16 KB devices.
 - (ii) 64 KB of SRAM using 16 KB devices.Draw the design and give the memory map.
2. (a) Describe different addressing modes of 8085 microprocessor with an example of each. 10
(b) With neat diagram describe programmer's model of 8085 microprocessor. 10
3. (a) Describe with neat diagram architecture of 8086 microprocessor. 10
(b) What is Bus arbitration? Describe the different Bus arbitration techniques with diagram. 10
4. (a) Describe with neat diagram 8255 PPI, also give the CWR. 10
(b) Describe with neat diagram IVT of 8086 microprocessor. 10
5. (a) Write an 8086 assembly language program to transfer a block of 5-16 bit numbers from memory location 10000H to 10002H (source and destination blocks are overlapped) 10
(b) Describe with neat diagram 8259 PIC. 10
6. (a) Differentiate between :- 10
 - (i) I/O mapped I/O and memory mapped I/O
 - (ii) SRAM and DRAM
(b) Describe with neat diagram memory segmentation in 8086, also give merits and demerits of segmentation. 10
7. Write short notes on (any four) :- 20
 - (a) Features of 8086
 - (b) RESET circuit of 8086
 - (c) RS-232C interface
 - (d) Concept of DMA
 - (e) 8288 bus controller

QP Code : 3792

(OLD COURSE)

Duration : 3 hours

Total marks : 100

Note.(1) Question No. 1 is compulsory

- (2) Attempt any four questions from remaining six questions
- (3) Draw suitable diagrams wherever necessary
- (4) Assume suitable data, if necessary.

Q1. (a) Explain Chomsky Hierarchy (10)

(b) Let G be the grammar . Find the leftmost derivation, rightmost derivation and parse (10)

tree for the string 00110101

G: $S \rightarrow 0B \mid 1A$

$A \rightarrow 0 \mid 0S \mid 1AA$

$B \rightarrow 1 \mid 1S \mid 0BB$

Q2. (a) For the alphabet $\Sigma = \{0,1\}$, design a DFA to accept (10)

- (i) a set of all strings ending with 100 or 101.
- (ii) a set of all strings that contain at least three 1's.

(b) What is a regular expression? Give formal definition of a regular expression . Design a (10)

DFA corresponding to the regular expression $(a+b)^* aba(a+b)^*$

Q3. (a) Design a Moore and Mealy machine to convert each occurrence of a substring 100 by 101. (10)

(b) Convert the following NFA to a DFA (10)



