

Third Year B. Tech. of the Four – Year Integrated  
Degree Course Examination, 2017-18  
(Computer Science & Engineering)  
SEMESTER- II

MICROPROCESSORS, INTERFACING AND APPLICATIONS

Time: Three Hours

Maximum Marks: 50

"Do not write anything on question paper except Roll Number otherwise it shall be deemed as an act of indulging in use of Unfair-means and action taken as per rules".

- (i) Attempt any **FIVE** questions.
- (ii) The question paper has four units. Each unit has two questions.
- (iii) Attempt at least one question from each unit.
- (iv) Answer should be to the point.
- (v) All questions carry equal marks.

**UNIT -I**

1. a) Draw the flag register of 8086 and explain the controlling flags in brief. 5
- b) State and explain the different types of instruction formats of 8086. 5
  
2. a) Explain the method of generating physical address of a memory location with suitable example. 5
- b) How the speed of the microprocessor is increased by using the pipelining concept? 5

**UNIT -II**

3. a) Explain five assembler directive and pseudo-ops with suitable example? 5
- b) Solve the arithmetic expression using shift and add instruction  
$$4(AX) + 2(BX) + 4(BX) \longrightarrow (AX)$$
 5

4. a) Write an ALP to transfer a block of 1K byte from source memory location to destination memory location. Assume suitable address of source and destination. 5
- b) Assuming suitable data explain the function of following instructions:  
i) XCHG    ii) AAA    iii) LAHF    iv) XLAT    v) SAL 5

### UNIT -III

- Q.5 a) What do you mean by general bus operation of cycle of 8086 in maximum mode? Justify your answer with suitable timing diagram. 5
- b) Draw and explain about the internal architecture of 80286. 5
- Q.6) a) Draw and explain the read cycle Timing diagram for Minimum Mode. 5
- b) What do you mean by Real and Protected modes of operations of 80386? Discuss. 5

### UNIT -IV

- Q.7) a) Interface two 4K X 8 EPROMS and two 4K X 8 RAM chips with 8086 using suitable Mapping. Find the address range of each IC. 5
- b) What are the various methods for interfacing I / O devices? Discuss. 5
- Q.8) a) What do mean by the BSR Mode of 8255? Draw and explain the bit pattern of control word used for this mode. 5
- b) Interface an 8255 with 8086 to work as an I/O port. Initialize port A as an output port, port B as input port and port C as an output. Port A address should be 0740H.
- Write a program to sense switch position SW<sub>0</sub>-SW<sub>7</sub> connected to Port B. The sensed pattern is to be displayed on port A, to which 8 LEDs are connected ,while the port C lower ; display number of ON switches out of the total eight switches 5

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B.Tech. (III) Yr.

Total Pages : 4

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Course No. : CS-322

Third Year B.Tech. of the Four-Year Integrated  
Degree Course Examination, 2014-15  
(Computer Science & Engineering)

SEMESTER-II

**MICROPROCESSORS, INTERFACING  
& APPLICATIONS**

Time : Three Hours

Maximum Marks : 50

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M-IV/186/II/2014-15/80/ZZ/100

P. T. O.

## UNIT-I

1. (a) What are the features of 8086 Microprocessor?  
Draw the Logical diagram of 8086 microprocessor in maximum mode.  
  
(b) Why segmentation is necessary in higher processors? Explain the generation of Physical address in each segment of 8086 Microprocessor.
  
2. (a) Explain the working of following pins of 8086 Microprocessor. 5  
  - (i)  $\overline{RQ} / \overline{GTO}$
  - (ii)  $\overline{LOCK}$
  - (iii)  $\overline{TEST}$
  - (iv)  $QS_1, QS_0$
  - (v)  $DT / \overline{R}$  
(b) Describe Intrasegment and intersegment addressing modes of 8086 Microprocessor with an example. 6. 7.

## UNIT-II

3. (a) Name all the string related Instructions  
explain any two of them.  
  
(b) What is segment override Instruction? Describe with an example. Also explain Shift instructions in 8086 Microprocessor. 8.

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4. (a) What are Assembler directives? Explain a program structure using these directives for a near end call and a far end call procedure. 5
- (b) Discuss Parameter passing concepts. Write any assembly language program that shows parameter passing concept using stack for 8086 Microprocessor. 5

### UNIT-III

5. (a) Define various interrupts of 8086 Microprocessor and their priorities with their vector locations. 5
- (b) Describe any one bus standard used in 8086 with signals and their voltage level. 5
6. (a) Explain various modes of 80386 Microprocessor in brief. 5
- (b) Describe Virtual address translation in 80286 processor. 5

### UNIT-IV

7. (a) Interface a RAM, EPROM and a IO device with 8086 Microprocessor. Draw detailed diagram and assume necessary approximation and justify your answer. 5
- (b) Interface  $4 \times 4$  matrix keyboard with 8086 Microprocessor and draw its flow chart for any keypress. Assume suitable assumptions. 5

P.T.O.

8. (a) Initialize 8255 in simple IO mode (mode 0) using 8086 to display 8-bit data on LED's connected at port B. Draw the interface diagram and write initializing program.
- (b) Write an Assembly language program in 8086 to read an analog voltage from an ADC (8 bit) using 8255 and store data at a memory location. Also draw interface diagram. Assume suitable approximations.

## **UNIT-I**

1. (a) Explain the architecture of a Typical Micro Computer.  
(b) Describe CPU architecture and its internal operations.
2. (a) What is a Instruction ? Explain various instruction formats and their execution time.  
(b) Differentiate 8086 architecture & 8088 architecture of Microprocessors.

## **UNIT-II**

3. (a) Explain various arithmetic and loop instructions of 8086.  
(b) What is a Flag ? What is the concept of Flag manipulation ? Explain in detail.
4. (a) What do you understand by Directive ? Explain in greater detail.

(b) Write short notes on following : 10

(i) Operators.

(ii) Assembly Process.  $2\frac{1}{2} \times 2 = 5$

### UNIT-III

5. (a) What do you understand by Mode Operation ?

Explain mode operation of 8086. 5

(b) Explain Interrupt Priority Management in detail. 5

6. (a) Explain system bus architecture in detail. 5

(b) Differentiate 80186 & 80486 Microprocessors.

5

### UNIT-IV

7. (a) What is Interfacing ? Explain memory interface to an 32-bit data bus. 5

(b) Explain interfacing of A/D converter and D/A converter in detail. 5

P. T. O.

8. (a) Write short notes on the following :

(i)

(i) ADC.

(ii)

(ii) DAC.

$$2\frac{1}{2} \times 2 = 5$$

(b) Write short notes on the following :

(i)

(i) LED displays

(ii) Keyboard displays.

$$2\frac{1}{2} \times 2 = 5$$

(i)

(i)

(i)

(i)

M-II/86/II/2016-17/80/ZZ/158

**Third Year B. E. of the Four Year Integrated  
Degree Course Examination, 2010-11  
(Computer Science & Engineering)**

**SEMESTER-II**

**Microprocessors, Interfacing and Applications**

**Time : Three Hours**

**Maximum Marks : 50**

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**UNIT - I**

- Q. 1 (a) Explain architecture of microcomputer? (5)  
(b) What type of addressing modes used in 8086? Describe all? (5)
- Q. 2. (a) Explain architecture of 8086? (5)  
(b) Compare microprocessor 8088 with 8086? (5)

**UNIT - II**

- Q. 3 (a) Write an assembly program to find greatest between three numbers? (5)  
(b) Explain the logical shift and rotate instructions with example? Also mention the clock cycles used in execution of instructions. (5)
- Q. 4 (a) Explain bus architecture of 8086? (5)  
(b) Explain system bus timing & interrupt priority management? (5)

Contd.... (2), P.T.O.

UNIT - III

- Q. 5. Explain functional description of 80816? Compare it with Pentium microprocessor? (5+5)  
Q. 6. Compare the 80286, 80386 & 80486 microprocessors on all factors? (10)

UNIT - IV

- Q. 7 (a) What is data bus? Explain the interface memory to 16 bit data bus? (5)  
(b) Explain ADC & DAC interface? (5)
- Q. 8 (a) Describe the LCD display interface ?  
(b) Explain & describe the keyboard interface? (5)

B.Tech. (III Yr.)

Total Pages : 3

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Course No. : CS-322

Third Year B.Tech. of the Four-Year Integrated  
Degree Course Examination, 2013-14  
(Computer Science & Engineering)

SEMESTER-II

### **MICROPROCESSORS, INTERFACING AND APPLICATIONS**

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M-V/195/II/2013-14/75/ZZ/152

P. T. O.

## **UNIT-I**

1. (a) With a neat block diagram explain the architecture of 8086 microprocessor.
- (b) Draw and explain the read and write cycle timing diagram of 8086 in minimum mode. 6,4
2. (a) Explain with examples various addressing modes of 8086 instruction set with suitable instruction format.
- (b) Compare 8088 microprocessor with 8086 microprocessor. 6,4

## **UNIT-II**

3. (a) Explain the structure of macro with the help of example. How macro is different from procedure? Explain.
- (b) What are the loop instructions of 8086? Explain the use of DF flag in the execution of string instructions. 5,5
4. (a) List and explain various types of data transfer instructions in 8086.
- (b) What are assembler directives? Explain EQU, DW, DQ, DD and DT assembler directives. 5,5

## **UNIT-III**

5. (a) Describe the basic interrupt structure of 8086 and explain its usage.
- (b) Describe various bus standards with suitable examples. 5,5
6. (a) With an internal architecture of 80286, describe the functional units in detail.
- (b) Give a detailed comparative discussion on register organization among 80386, 80486 and Pentium microprocessors. 5,5

7. (b)

8. (a)

(b)

#### UNIT-IV

7. (a) Explain in detail about memory address decoding in 8086.
- (b) Draw and explain the connection diagram of ADC with peripheral device with one example. 5,5
8. (a) Explain how a seven segment LED can be interfaced to the microprocessor.
- (b) Draw neat block diagram of the 8255 programmable peripheral interface and explain its operating modes. 5,5

Third Year B. Tech. of the Four – Year Integrated  
Degree Course Examination, 2015-16  
(Computer Science & Engineering)

SEMESTER- II

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**UNIT - I**

Define a microprocessor. Draw and explain the functional block diagram of 8086 microprocessor.

(5+5)

Write note on instruction formats and execution timing.

**OR**

Explain the addressing modes supported by 8086 with suitable examples.

(5+5)

Explain the addressing modes supported by 8086 with suitable examples.

Compare 8088 microprocessor and 8086 microprocessor.

P.T.O.

## UNIT - II

- (a) How the instruction set of 8086 processor is classified? Discuss the arithmetic instructions of 8086.  
(b) Explain shift and rotate instructions with example.

OR

4. (a) What is a flag register? Explain the flag register of 8086 with examples.  
(b) What do you mean by assembler directives? List the assembler directives and explain each briefly.

## UNIT - III

5. (a) Illustrate the general bus organization of a microprocessor.

- (b) Enlist the various steps that 8086 takes to follow an interrupt. What is interrupt vector table? Specify the priority of various interrupts of 8086.

OR

6. (a) Distinguish between 80286 and 80386 microprocessors.

- (b) Describe the salient features of Pentium microprocessor.

## UNIT - IV

7. (a) Explain 8086 memory interface with suitable example.

- (b) How will you interface a keyboard with 8086 Microprocessor? Explain.

OR

8. (a) Explain the 7 segment LED interface with 8086 microprocessor.

- (b) Why do we need A/D converter and D/A converter? Explain interfacing of A/D converter and D/A converter.

"Do not  
Roll Number  
of individual"

(5+5)

(i)

(ii)

(iii)

(iv)

(v)

(5)

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