(EM 311)

III/IV B.Tech. DEGREE EXAMINATION,

OCTOBER 2005.

First Semester

MICROPROCESSORS

Time : Three hours Maximum : 70 marks

Answer Question No. 1 compulsorily.

(7 × 2 = 14)

Answer ONE question from each Unit.

(4 × 14 = 56)

All questions carry equal marks.

1. (a) What are the differences between 8086 and 80286 μPs?

(b) What are assembly language program development tools?

(c) What are the differences between macro and procedure?

(d) Give examples for pseudo instructions of 8086 assembler with description.

(e) What do status signals S_3, S_4, S_5, S_6 and S_7 represent?

(f) What are the difference between AAM and AAD instructions of 8086?

(g) If HOLD input and NMI input are simultaneously activated, which one is service first? Justify your answer.

UNIT I

2. (a) Write the functional block diagram of 8086 and explain how 8086 is reset with power-on and manual operation and write the after-effect of resetting 8086.

(b) Write the merits and demerits of memory segmentation in 8086. Describe the address mode byte in instruction format of 8086.

Or

(c) Explain in detail the 8086 programming model.

(d) Implement WHILE-DO construct using 8086 assembly language program that can generate exec. file with assembler and linker.

UNIT II

3. (a) Describe the following 8086 instructions by giving complete instruction description :

(i) LDS BX, DWORD PTR[SI]

(ii) SCANSB

(iii) TEST CX,DX

(iv) MUL BYTE PTR[BX]

(v) RET 8

(vi) ESC 31H,MYDATA.

Or

(b) Write 8086 assembly language procedure for setting the direction flag and macro for clearing the direction flag. Use main line program for block data transfer using string instructions.

(c) List three methods of passing parameters to a procedure with relative merits and demerits.

UNIT III

4. (a) Write and explain the basic system timing of 8086 in minimum mode.

Or

(b) Using type 1 interrupt, perform instruction tracing of main line program segment shown below, by using relevant interrupt service procedure that displays all registers

```
MOV AX, 1234H
MOV BX, 5678H
MOV CX, 9ABCH
ADD AX,BX
```

UNIT IV

5. (a) Write the maximum mode signals and their descriptions of 8086.

(b) Briefly describe the architecture of 80186.

Or

(c) Give the block diagram of 8086-system with 8087 co-processor and explain how this system executes the following 8086-8087 program segment

```
        MOV AX, 1111H
        FMUL
        FSQRT
        CMP AX, BX
        JZ NEXT
        MOV BX, AX
NEXT    MOV AX,BX
```