

[This question paper contains 4 printed pages.]

Your Roll No. ....

3214

J

MEE

Paper – EE.601

MICROPROCESSOR

Time : 3 Hours

Maximum Marks : 100

*(Write your Roll No. on the top immediately  
on receipt of this question paper.)*

*Question No. 1 is compulsory.*

*Attempt any four questions from the rest.*

*Assume missing data, if any.*

1. (a) Explain the significance of PTR attribute with atleast 2 examples. 2
- (b) Write an assembly language program to copy a block of data from location array 1 to array 2. Assume there are 5 data bytes in the block. 4
- (c) Explain the following instructions : 4
  - (i) LDS BX, Code
  - (ii) XLATB
  - (iii) RZ
  - (iv) AAA
- (d) Explain the function of following pins of 8086 : 4
  - (i)  $\overline{\text{DEN}}$
  - (ii)  $\overline{\text{BHE}}/87$

[P. T. O.]

(iii) NMI

(iv) TEST

- (e) Identify the addressing mode and calculate the physical address of the operand of the following instructions : 4
- (i) MOV AX, Word PTR [BX + 2]
- (ii) MOV AX, [BP] [DI]
- Assume [CS] = 4000H, [BX] = 2012H, (DS) = 2000H and (SS) = 3000H.
- (f) Differentiate between vectored interrupts and non-vectored interrupts. 2
2. (a) Design a memory interface circuit to connect 16 kB RAM in minimum mode using  $4 \times 4$  kB RAM units. 10
- (b) Write a near procedure to add the sum of the squares of digits 0 to 9. 6
- (c) How the processor can read a word from two consecutive memory locations using a single read instruction? 4
3. (a) Write an assembly language program for converting a packed BCD number to equivalent binary number. 6
- (b) Write an assembly language program to generate Fibonacci series. 6

- (c) Write a far procedure to compute  $\sum_{i=1}^{10} \frac{x_i^2}{100}$ . 8
4. (a) Explain the interrupt structure of 8086 in detail and also explain the interrupt response sequence of 8086. 12
- (b) What is the difference between Near and Far procedure ? Explain these procedures with suitable examples of direct and indirect calls in each case. 4
- (c) Write an interrupt service routine for INT 85H which adds the contents of registers AX and BX and stores result at CX. Also write instructions to place the address of the subroutine in the vector table. 4
5. (a) Explain the pipeline architecture of 8086 with help of a neat diagram. 8
- (b) With the help of a neat diagram explain the internal architecture of 8087. 6
- (c) Explain control and status word of 8087. 6
6. (a) What are assembler directives ? Explain the following directives : 5
- (i) EVEN
- (ii) ASSUME

(iii) ORG

(iv) PUBLIC

- (b) Explain maximum mode operation of 8086 with the help of a neat diagram. 10
- (c) Write an assembly language program for reversing a string. 5

7. Write short notes on *any two* of the following :

10 × 2 = 20

- (a) 8259 interrupt controller
- (b) 8284 clock generator IC
- (c) 8051 micro controller
- (d) 8086 and 8087 interfacing