Name : ....

Roll No. : ....

Invigilator's Signature : ....

CS/M.Tech(EDPS)/SEM-3/EDPM-301-B/2011-12
2011
MICROPROCESSOR & MICROCONTROLLER

Time Allotted : 3 Hours   *Full Marks* : 70

The figures in the margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

Answer any *five* of the following. $5 \times 14 = 70$

1. a) Explain the function of the following pins of 8086 microprocessor :   10

    i) $\overline{\text{TEST}}$

    ii)   ALE

    iii) $\overline{\text{BHE}}$ / S7

    iv) $\overline{\text{LOCK}}$

    v) QS_1 , QS_0 .

    b) Explain the register organization of 8086 microprocessor.   4

40405   [Turn over

2. a) Explain the function of all the flags of 8086 microprocessor. 9

   b) Explain 8086 interrupts. 3

   c) Explain pipelining in 8086 microprocessor. 2

3. a) Explain the following : 3

      i) Memory segmentation in 8086.

      ii) Effective address or offset in 8086.

      iii) Relation between physical and logical address in 8086 microprocessor.

   b) Explain the following instructions of 8086 microprocessor : 7

      i) AAA

      ii) IMUL

      iii) ESC

      iv) SCAS

      v) XLANT

      vi) REPNE

      vii) POPF.

   c) Explain the immediate addressing mode and based indexed with displacement addressing mode of 8086 microprocessor. Give example of each. 4
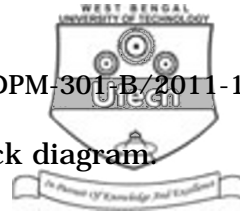
4. a) Draw and explain 8086 functional block diagram. 5

   b) Explain the following instructions of 8086 microprocessor : 5

      i) WAIT

      ii) STC

      iii) LODS

      iv) CMPS

      v) DAA.

   c) 16 data bytes are stored in the memory location 00F9O to 00F9F. Write a program to find the average of the data bytes and store the result in 00E00 and 00E01. 4

5. a) Explain the control word for I/O mode of 8255. 4

   b) Write a BSR control word subroutine to set bits PC_7 and PC_3 and reset them after 10 ms and assurance that a delay subroutine is available. 2

   c) Explain the following blocks of 8259 interrupt controller :

      ISR, IRR, IMR, priority resolver, cascade buffer / comparator. 5

   d) Explain the different priority modes of 8259. 3

6. a) Draw and explain mode 1 I/P and O/P configuration of 8255. 5

   b) Explain the DMA concept and write the function of HRQ and HLDA, TC, MARK pin of 8237 DMA controller. 5

   c) Write down the difference between RISC and CISC systems. 4

7. a) Explain the Pentium registers. 3

   b) Explain the flag register of the Pentium. 8

   c) Explain the register banks and their RAM addresses of 8051 microcontroller. 3

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