VT Oct 08-301

Con. 5859–08.   (REVISED COURSE)   RC–6492

(3 Hours)   [Total Marks : 100

N.B. : (1) Question No. **1** is **compulsory.**
     (2) Attempt any **four** questions out of remaining **six** questions.
     (3) Assume **suitable** data wherever **required** but justify them.
     (4) **Figures** to the **right** indicate **full** marks.

1. (a) Design a 8086 based microprocessor system with following specifications :–   12
     (i)   8086 microprocessor working at 8 MHz.
     (ii) 32 KB of EPROM using 16 KB devices.
     (iii) 64 KB of SRAM using 16 KB devices.
     Explain the design and show the memory map.
   (b) Explain with neat diagram the 16-bit memory interface (Odd and even 8-bit memory   8
     banks) of the 8086 microprocessor.

2. (a) Write a 8086 program that displays the binary powers of 2 (in decimal) on the   10
     video screen for the powers 0 through 7. Your display shows 2^n = value for
     each power of 2.
   (b) Explain and draw the internal structure of the 80 x 87 arithmetic coprocessor.   10

3. (a) Explain and draw the control word format for the 8254 timer.   10
   (b) Explain the block diagram of 8255A and explain its BSR mode.   10

4. (a) Explain in brief with one example the function of following instructions :–   10
     (i)   AAS
     (ii) SCAS
     (iii) INTO
     (iv) FSQRT
     (v)   TEST
   (b) Explain various data transfer modes supported by 8237 DMA controller.   10

5. (a) Write an Assembly Language Program (8086 program) to exchange the blocks   10
     of 1 KB located at 0100 H and 0200 H, using string instructions.
   (b) What do you mean by Bus arbitration ? When it is required ? Explain different   10
     types of arbitration scheme.

6. (a) Explain Cascading of three 8259 A PICs using master slave configuration.   10
   (b) Differentiate between :–   10
     (i)   Procedure and Macro
     (ii) Minimum mode and maximum mode of 8086.

7. (a) Discuss the control and status word format of Numeric coprocessor 8087.   10
   (b) What do you mean by multiprocessor system ? Explain the different multiprocessor   10
     configurations supported by 8086 ?.

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