This question paper contains **4** printed pages]

S. No. of Question Paper   : **6076**

Unique Paper Code   : **234502**   **D**

Name of the Paper   : **Microprocessors (CSHT-512)**

Name of the Course   : **B.Sc. (H) Computer Science**

Semester   : **V**

Duration : **3 Hours**   Maximum Marks : **75**

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

Attempt all questions in Section A.

Attempt any *Four* questions in Section B.

Section A

(Attempt *all* questions)

1. (*a*) What is the purpose of Auxiliary carry flag ? Name the arithmetic operations that set

this flag.   3

(*b*) Select an instruction for each of the following task :   3

(*i*)   move 1200A2H into EBX

(*ii*) copy AL into AH

(*iii*) move 0CDH into CL

(*c*) Explain the operation of the LODS and STOSW instruction.   3

2. (*a*) Identify the dafault segment registers assigned to the following :   3

      (*i*)   EBX

      (*ii*) DI

      (*iii*) SP

  (*b*) List the *five* flag bits tested by the conditional jump instructions.   3

  (*c*) Contrast the operation of a JMP [DI] with a JMP DI and JMP FAR PTR [DI]

     Instructions.   5

3. (*a*) Explain the operation of the TEST pin and the WAIT instruction.   3

  (*b*) List the number of words found in the each memory device for the following numbers

     of address connections :   3

      (*i*)   12

      (*ii*) 11

      (*iii*) 8

  (*c*) Describe the operation of INSW and OUTSB instructions.   3

4. (*a*) List any *three* interrupt instructions for the microprocessor.   3

  (*b*) What is a memory to memory DMA transfer ?   3

Section B

(Attempt any four questions)

5. (*a*) For an 80486 descriptor that contains a base address of 00280000H, a limit of 00010H, what starting and ending locations are addressed by this descriptor when G = 0 and G = 1 ?   4

   (*b*) Explain *three* program memory addressing modes with the help of examples.   6

6. Describe the operation of each of the following instructions :   5×2=10

   (*i*)   POPFD

   (*ii*) POPA

   (*iii*) PUSH CS

   (*iv*) LODS

   (*v*)   MOVSX

7. (*a*) Explain how the near and far CALL instructions function.   4

   (*b*) List the conditional jump instructions which follow the comparison of unsigned numbers.   6

8. (*a*) Which address lines on the 8088 microprocessor are typically demultiplexed ? Draw the diagram of 8088 microprocessor with a demultiplexed address bus.   6

   (*b*) Why is memory address decoding important ?   4

9. (*a*) Differentiate between memory mapped I/O system and an isolated I/O system.   4

    (*b*) What are the three modes of operation available to the 82C55 ? Explain any *one* mode

    in detail.   6

10. (*a*) Explain the following :   3×2=6

    (*i*)   Single step interrupt

    (*ii*)   Non-maskable hardware interrupt

    (*iii*) Superscalar Architecture in Pentium Microprocessor

    (*b*) Explain *three* software commands that are used to control the operation of the 8237

    DMA Controller.   4