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This question paper contains 4 printed pages]

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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

P.T.O.

2. (a) Identify the default 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 :  $5 \times 2 = 10$
- (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

P.T.O.

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