[This question paper contains 6 printed pages.]

Your Roll No.....

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Sr. No. of Question Paper : 7880

Unique Paper Code : 32347504

Name of the Paper : Microprocessors

Name of the Course : **B.Sc. (H) Computer Science : DSE-1**

Semester : V

Duration : 3 Hours Maximum Marks : 75

Instructions for Candidates

1. Write your Roll No. on the top immediately on receipt of this question paper.
2. Attempt **all** questions from **Section A.**
3. Attempt any **four** questions from **Section B.**
4. Attempt all parts of a question together.

SECTION A

1. (a) "Segment and Offset Addressing Scheme Allows Relocation" Justify the statement. (2)

P.T.O.

(b) Differentiate between MOVZX and MOVSX instruction with the help of an example. (3)

(c) Explain how the Near and Far CALL instructions function. (3)

(d) What is a displacement? How does it determine the memory address in a MOV [2000H], AL instruction? (3)

(e) Which three minimum mode 8086/8088 pins are decoded to discover whether the processor is halted? (3)

(f) Contrast a memory-mapped I/O system with an isolated I/O system. (3)

(g) List the number of data items stored in each of the following memory devices and the number of bits in each datum :

(i) 16K × 1

(ii) 2K × 4

(iii) 64K × 4 (3)

(h) What is the purpose of D, S and NT bits of FLAG register? (3)

(i) Which type of JMP instruction (short, near, or far) assembles for the following :

(i) If the distance is 0210H bytes

(ii) If the distance is 0020H bytes

(iii) If the distance is 10000H bytes (3)

(j) What three modes of operation are available to 8255 programmable peripheral interface? (3)

(k) Which conditional jump instructions follow the comparison of signed and unsigned numbers? (3)

(l) What is the purpose of ICW1, ICW2 and OCW1 in programming the 8259A programmable interrupt controller? (3)

SECTION B

2. (a) What do you mean by the program-invisible registers? Explain the purpose of IDTR and TR. (5)

(b) What is an assembly language directive? Explain the purpose of following directives : 5

(i) .BREAK

(ii) .386

(iii) .STARTUP

(iv) EQU (5)

3. Explain the difference between :

(a) LDS and LSS

(b) PUSHF and PUSHFD

(c) IRET and IRETD

(d) INSW and OUTSB

(e) JAE and JGE (10)

4. (a) Draw and explain the write bus cycle for 8086/8088 microprocessor. (5)

(b) Give the new features made available in Pentium microprocessor. (5)

5. (a) Explain how the command register programs the operation of the 8237 DMA. (5)

(b) Describe the register relative addressing mode of the 8086 with the help of an example. (5)

6. Write the function of following instructions :

(a) NOP

(b) BOUND

(c) CMOV

(d) POPAD

(e) STOSW (10)

7. (a) Given that DS = 1100H, BX=0200H, LIST= 0250H and SI=0500H. Determine the address accessed by each of the following instructions, assuming real mode operation:

(i) MOV LIST[SI], EDX

(ii) MOV CL, LIST[BX+SI]

(iii) MOV CH, [BX+SI] (5)

P.T.O.

(b) How do CALL and RET instructions affect stack? Explain with an example.