(v) ADD the data addressed by SI to AL

(5)

(b) Explain the strobed-input operation of Programmable Peripheral Interface 82C55 with help of a diagram.

(5)

[This question paper contains 8 printed pages.]

Your Roll No.....

Sr. No. of Question Paper : 1193 **C**

Unique Paper Code : 32347504

Name of the Paper : Microprocessor

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

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) What is the difference between a program visible and invisible register set? Give examples of at least two program invisible registers. (3)

(b) What is the difference between 8086 and 8088 microprocessors? (3)

(c) Are the following instructions valid?

(i) PUSH 1234H

(ii) MOV DS, AX

(iii) MOV DS:[BX], 10H (3)

(d) Consider a memory device of 400H. It has base address as 20000H.

(i) What is the size of the memory device in bytes?

(ii) What is the starting address location and ending address location? (3)

(e) Explain the following instructions –

(i) OUTSW

(ii) INSD (3)

(i) LOCK

(ii) HOLD

(iii) ALE

(iv) Status pins S3, S4 (5)

(b) Explain the mode register of 8237 DMA Controller. (3)

(c) Explain Branch Prediction Logic of Pentium microprocessor. (2)

7. (a) Write arithmetic and logical assembly instructions for the following :

(i) SUBTRACT DI from SI

(ii) OR 88H with ECX

(iii) AND BX with DX and save the result in BX

(iv) XOR BH with AH and save the result in AH

5. (a) Suppose EAX = 00000200, EBX = 00000250, DS = 0300H, SS = 0440H, BP = 0110H and SI = 0010H. (5)

Determine the address accessed by each of the following instructions, assuming real mode operation :

(i) MOV ECX, [BP – 200H]

(ii) MOV DL, [BP + SI – 10H]

(iii) MOV BX, [SI + 100H]

(iv) MOV ECX, [EAX + 2*EBX + 10]

(v) MOV [EAX + 4*EBX], AL

(b) (i) What is the difference between far and near CALL?

(ii) Explain about the interrupt INTO. (3+2)

6. (a) Explain the function of following pins of 8086 microprocessor –

(f) Explain direct data addressing mode with the help of an example.

(g) Explain BOUND interrupt instruction. (2)

(h) Assume a memory device with 10 address pins and 8 data pins. What will be the size of the memory device? (3)

(i) Which type of JMP instruction (short, near, or far) assembles for the following : (3)

(i) If the distance is 0160H bytes

(ii) If the distance is 10000H bytes

(j) If direction bit D is 0, DI = 01FFH, SI = 0100H,

then what will be the value of SI and DI after execution of MOVSD instruction? Explain. (3)

(k) Explain the following output pins of 8284A clock generator :

(i) CLK

(ii) PCLK

(iii) OSC (3)

(l) Explain the concept of two memory banks in 8086 microprocessor. (3)

SECTION B

2. (a) Consider a memory device, 256K X 8 DRAM.

(i) Specify the number of data pins, address pins, selection pins and control pins of the given memory device.

(ii) Explain diagrammatically how address pins are demultiplexed in the given memory device? (2+3)

(b) Write all five steps that occur when an interrupt is active? (5)

3. (a) Answer the following questions – (2)

(i) What happens in 8086/8088 when TEST input is at logic 1?

(ii) How many address pins are there in a 4K memory device?

(b) Differentiate between NMI pin and INTR pin. (3)

(c) Explain Operation Command Words (OCW1, OCW2, OCW3) of 8259A programmable interrupt controller (PIC). (5)

4. (a) Describe protected mode of memory. If DS = 110FH, then which descriptor table entry is accessed and what will be the privilege levels? (5)

(b) Explain the following assembly language instructions with example :

(i) CWD

(ii) DAA (5)