Sl. No of Question Paper : 1666 100

Unique Paper Code : 2341601

Name of the Paper : Add *

Name of the Course: : Add # F-8

Semester : VI

Name of the paper : * Microprocessors

Unique paper Code : 2341601

Duration of Examination : Three Hours

Maximum Marks : 75 Marks

Instructions for the Candidates

- Attempt all questions from **Section A.**
- Attempt any **four** questions from **Section B.**
- Attempt all parts of a question together.

Section A

Q1.(a) Which is more efficient MOV with an offset or LEA instruction? Justify 3

(b) In the real mode, determine the starting and ending address of the memory segment if the segment register holds the value 2355H. 3

(c) What does the instruction LODSW do? 3

(d) How many bytes of memory store a far direct jump instruction? What is stored in each of the bytes? 3

(e) What is wrong with the instruction MOV DS, SS? 3

(f) List the flag bits tested by the conditional jump instructions. 3

(g) Differentiate between software and hardware interrupts. 3

(h) Evaluate the address lines and data lines required to map 128K x 8 memory. 3

(i) What is the purpose of the $\overline{CE}$ pin on a memory device? 3

(j) Design a Control Word for 82C55 to set Port A as Output Port, Port B as Input Port in Mode 1 operation. 3

(k) The instruction MOV [5000H], BX is used to access a peripheral. Comment on the kind of peripheral and the width of its data lines. 3

(l) Which microprocessor pin and its status forces it to come out from the wait state? 2

Section B

Q2.(a) For a Core2 descriptor that contains a base address of 01000000H, a limit of 0FFFFH, and G=0, what starting and ending locations are addressed by this descriptor? 4

(b) Explain with example the instruction LSS BX, [DI]. 4

(c) Which register or registers are used as an offset address for the string instruction destination in the microprocessor? 2

Q3.(a) Identify the addressing mode of each of the following instructions: 4
(i) MOV AL, [5534H]
(ii) MOV AX, [BX]
(ii) MOV ECX, [SI+BX + 200H]
(iii) MOV DX, [EBX + 4*ECX +1000H]

(b) What is the difference between an intersegment and intrasegment jump? If a near jump uses a signed 16-bit displacement, how can it jump to any memory location within the current code segment? 4

(c) What is the difference between register addressing mode and direct addressing mode? 2

Q4.(a) Explain the instructions XLAT and MOVSX with example. 4

(b) Describe the operations of PUSHA. Let the current value of be SP=2000H. What will be the value of SP after the PUSHA instruction is executed?. 4

(c) Which flag bit is tested by the JB instruction? 2

Q5.(a) Explain and sketch the WRITE operation with the help of bus timing cycle. 4

(b) How is memory interfacing different for 8086 and 8088 systems? 4

(c) A 30 MHz crystal is attached to the 8284A clock generator, what is the operating frequency of the 8086 microprocessor? 2

Q6.(a) Design a decoder circuit to map F6000-F7FFF on 8K x 8 memory. 4

(b) Write the control word of the 8254 interval timer to configure counter 2 in mode 2 to count LSB only in BCD. 4

(c) Write the 8086 instruction/s to read 8 bit data from the port with address 3250H. 2

Q7(a) Define the term interrupt. Why should an interrupt vector have 4 bytes in real mode of memory addressing? 4

(b) Explain three software commands that are used to control the operation of the 8237 DMA controller. 4

(c) How is a hardware interrupt requested? 2