GANPAT UNIVERSITY

B.Tech. Sem V(BM & Inst.), Regular Examination NOV DEC-2010
BME-504 Microprocessors and Microcontrollers

Max Marks:70

Max Time:3 hours

Instructions:
1. Answers to the 2 sections must be written in the separate answer books.
2. Figures to the right indicate marks.
3. Conventional terms or notations are used.

SECTION I

Q.1
(a) Explain the following instructions (4)
a)SHLD b) LDAX c)LXI d)XCHG d)MVI

(b) Define following terms: (4)
a)Assembler b)Opcode c)Mnemonics d)Instruction

(c) Describe the programming model of 8085 (4)

OR

Q.1
(a) Write a program to generate the continuous Square wave of 300 µS. display the waveform at the Port address 02H(clock period 325nS) (5)

(b) Write a program to count from 0 to 9 with 1 second delay between each count. At the count 9 the counter should reset itself to 0 and repeat the sequence continuously. (5)

(c) What do you understand by the vectored interrupts? (2)

Q.2
(a) Calculate the COUNT to obtain a 1 millisecond delay. clock frequency is 3MHz (3)

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        MVI B,COUNT
Loop:   NOP
        DCR B
        JNZ Loop
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(b) Describe the Call and return instructions in detail (5)

(c) Describe the various addressing modes of 8085. (4)

OR

Q.2
(a) Write a subroutine to generate the delay of 1Sec if the clock frequency is 1MHz. (5)

(b) Write a program to add 16Bytes of data stored at the memory location C300H onwards store result at memory location C500H. (5)

(c) Mention the instructions used for checking the contents of program counter and flag register. (2)

Q.3   (11)

(a) Describe the 8085 Interrupts and its vector locations in detail.

(b) Write a program to convert the BCD code in to the Binary Code

SECTION II

Q.4

(a) What is Microprocessor? Explain the functions of various Pins of the 8085 microprocessor with neat diagram. (8)

(b) Explain the difference between the machine language and the assembly language of the 8085 microprocessor. (2)

(c) What are the advantages of an assembly language in comparison with high-level languages? (2)

OR

Q.4

(a) Differentiate between the following: (6)
1. absolute decoding and partial decoding
2. static RAM and Dynamic RAM
3. memory mapped I/O and peripheral Mapped I/O

(b) Illustrate the data flow and list the sequence of events when the instruction code 4FH (MOV C, A), stored in location 2005H, is being fetched by the MPU. (6)

Q.5

(a) Draw and explain the timing diagram when the instruction OUT FFH is executed. The machine codes are stored at the memory locations 2000H & 2001H. (6)

(b) Draw the block diagram of 8155 I/O Section and Timer. Describe its control word briefly. (6)

OR

Q.5

(a) Draw and explain the timing diagram for the execution of MVI A, 55H instruction. The opcode (3EH) and the operand (55H) are stored in memory locations 2000H and 2001H respectively. calculate the total time to execute this instruction if frequency is 3MHz. (6)

(b) Draw the block diagram of 8255A programmable peripheral interface (PPI) and explain its modes and control word briefly. (6)

Q.6

(a) Explain different types of buses in 8085 microprocessor with neat diagram. (6)

(b) How lower order address bus and data bus can be demultiplexed? Draw and explain the technique to generate the control signals MEMR, MEMW, IOR & IOW. (5)

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