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FIFTH SEMESTER B.E. (ELECTRONICS AND COMMUNICATION)
EXAMINATION, MARCH 2001

MICROPROCESSOR

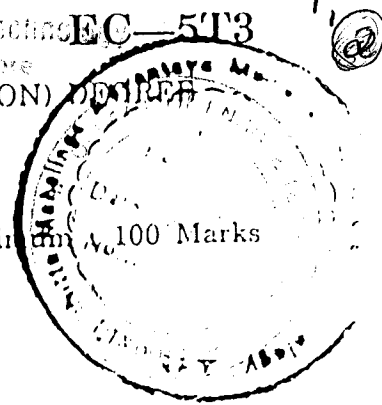Time : Three Hours   Maximum 100 Marks

Answer any five full questions.
All questions carry equal marks.
Use of O.P. code sheet not allowed.

1. (a) What is Microprocessor ? With neat sketch, explain the architecture of 8085.

(10 marks)

(b) Explain the functions of the following pins in 8085 :—

(i) ALE ; (ii) HOLD ; (iii) READY ; (iv) RST 7.5 ; (v) S1, S0.

(5 marks)

(c) Define T-state, Machine cycle and Instruction cycle. List all the instructions which has 5 M/C. (Machine Cycles).

(5 marks)

2. (a) Explain the operation of following instructions and specify addressing mode and number of M/C required :—

(i) DAA ; (ii) DAD B ; (iii) XTHL ; (iv) CNC addr.

(8 marks)

(b) Write circuit diagram to achieve :

(i) Demultiplexing of lower order Address/Data bus.
(ii) Increased driving capability of address and data bus.
(iii) Generation of Read/Write control signals for Memory and I/O.

(9 marks)

(c) How instructions are classified, give *one* example of each.

(3 marks)

3. (a) Write timing diagram for the following instruction INR M.

(6 marks)

(b) Write an Assembly Language Program to transfer block of 10 byte of data, which starts from memory address $x100$ into some other parts of memory which starts from $y100$.

(8 marks)

(c) Write ALP to save all the registers of 8085 on to stack and compute total time required.

(6 marks)

4. (a) Write ALP to have software delay of 0.25 seconds and assume operating frequency of 3.072 MHz.

(5 marks)

(b) Is it possible to CALL subroutine, without using CALL and RET instructions, if so how ?

(8 marks)

Turn over

(c) Write an ALP to evaluate the following expression $Y = P * Q + R * S$, where P, Q, R and S are 1 byte data stored in memory. Use subroutine for multiplication.

(7 marks)

5. (a) Interface 8 K byte EPROM and 2 K byte of RAM to 8085. Assume suitable memory mapping for EPROM and for RAM mapping starts from 8000. Use fully decoding address scheme.

(8 marks)

(b) Bring out difference between IO-mapped IO addressing and memory-mapped IO-addressing.

(6 marks)

(c) Interface one INPUT and one OUTPUT port to µP. Assume addressing of I/O devices are 40 and 62 H respectively.

(6 marks)

6. (a) Explain in detail different modes of operation of 8255 PPI with relevant timing waveform.

(9 marks)

(b) Write ALP to transfer 5 bytes of data stored in memory serially via SOD pin (8085.

(8 marks)

(c) Bring difference between Synchronous and Asynchronous serial data transfer.

(3 marks)

7. (a) Explain with neat block diagram the operation of 8251 USART.   (10 marks)

(b) Explain with neat block diagram, the operation of CRT controller [8275].

(10 marks)

8. (a) How do you enhance the number of interrupt levels at INTR pin of 8085 ? Explain.

(6 marks)

(b) Explain with block diagram, the operation of Key Board/Display Controller [8279].

(9 ma

(c) Write a note on DMA controller.   (5 marks)
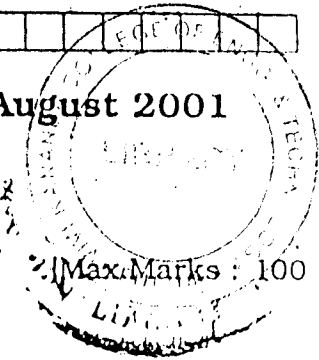
Reg. No.

Fifth Semester B.E. Degree Examination, August 2001

EC/TE

Microprocessor

Time: 3 hrs.]

Max. Marks : 100

Note: (i) Answer any FIVE full questions.
(ii) All questions carry equal marks.
(iii) Intel 8085 opcode sheets may be allowed.

1. (a) With a block diagram, explain the architecture of Intel 8085.

(10 Marks)

(b) List different addressing modes of 8085.

(5 Marks)

(c) Draw the timing diagram for the instruction Lx1B,2COOH.

(5 Marks)

2. (a) Give a simple circuit to derive the following control signals $\overline{MEMW}, \overline{MEMR}, \overline{IOW}, \overline{IOR}$ for I/O & memory.

(6 Marks)

(b) A memory map is available from locations 0000H to 03FFH. Organize the memory into 4 pages with 256 line each.

(6 Marks)

(c) Give the 8085 address de-multiplexing scheme using 74LS373 chip and explain.

(8 Marks)

3. (a) Write a program to generate a pulse as shown with a time delay of 200M Sec using SOD line: .
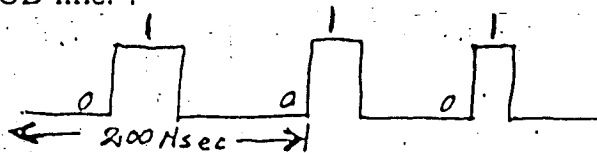
Clearly show delay calculations.

(8 Marks)

(b) Write an assembly language program to clear 100_{10} consecutive memory locations starting at CO8OH.

(8 Marks)

(c) Write a program to unpacks a two digit BCD number stored at memory location 1COOH.

(6 Marks)

4. (a) Explain the term memory mapping. Interface a R/W memory to 8085 and explain the signals that are used.

(8 Marks)

(b) Design a decoding scheme for the 8085 processor to connect.
   (i) Two-RAM's (1kx4) - each to the address (0800H to OBFFH)

(6 Marks)

   (ii) One - EPROM (1K) to the address (0000H to 03FFH)
   use 74LS138 decoder for the above.

(6 Marks)

5. (a) Give the full hardware scheme to connect 8085 with 8255 chip to the following addresses

Port A = 88H, Port B = 8gH

Port C = 8AH, P control word register=8BH. (7 Marks)

(b) Explain the term polling with suitable example. (6 Marks)

(c) Discuss the features of a memory mapped I/O. (7 Marks)

6. (a) Find the clocks frequency of an asynchronous 8251 system if the band rate is 1200 and the band rate factor is 64. (4 Marks)

(b) With a block diagram of 8251 USART, explain synchronous mode of operation. (10 Marks)

(c) Write a BSR control word subroutine for 8255 to set bits P_{c7} and P_{c3} and reset them after 1 msec delay. (6 Marks)

7. (a) Explain the following modes of Intel 8259

(i) Rotating priority mode

(ii) Polled mode, (8 Marks)

(b) For the INTEL 8279 explain the following

(i) Key board section (iii) Display section

(ii) Scan section (iv) MPU interface section. (12 Marks)

(c) A clock frequency of 1MHZ is fed to the counter2 of 8253 to get a delay of 1Msec. Calculate the value of N(count) which is to be loaded into counter 2. (2 Marks)

8. (a) Set up a 16 bit down counter using mode 0 of 8253 to display the last count at the output port. (8 Marks)

(b) Explain different operating modes of Intel 8257 DMA controller. (6 Marks)

(c) Explain the following 8275 CRT controller commands.

(i) Reset

(ii) Preset counters

(iii) Start display

(iv) Load cursor command. (8 Marks)

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EC5T3 3

Reg. No.

Fifth Semester B.E. Degree Examination, February 2002

Electronics & Communication Engineering

Microprocessor

90   16

Time: 3 hrs.]   [Max.Marks : 100

Note: *Answer any FIVE full questions.*

1. (a) Describe the functions of general purpose and special purpose registers of 8085. Also write the flag register format and explain the function of each flag.
   (8 Marks)

   (b) With block schematics, explain how the multiplexed address/data bus is demultiplexed and the memory and I / O control signals are generated in 8085.
   (8 Marks)

   (c) Derive the opcodes for the mnemonics MOV B, C and ADD D. If codes for MOV and ADD are 01 and 10 respectively.
   (4 Marks)

2. (a) Explain the functions of the following pins of 8085.
   i) Ready ii) RST6.5 iii) HOLD iv) $\overline{RESETIN}$.
   (4 Marks)

   (b) What is a tri state buffer? Write the drivers/buffers diagrams used for address and data lines of 8085.
   (6 Marks)

   (c) Describe the operation performed by 8085 when the following instructions are executed and also indicate the addressing mode used.
   i) DAA ii) LXI H 2540 iii) CALL 9540 iv) LDAX B v) CMP B. (10 Marks)

3. (a) Write the timing diagram for the instruction OUT 82H and indicate the operations performed in each machine cycle.
   (4 Marks)

   (b) Write a subroutine to generate a delay of 0.5 seconds using the register pair HL. For the clock frequency of 3.072 MHz, show the delay calculations.
   (8 Marks)

   (c) Write the contents of the registers/ memory locations and the flags affected at each step when the following sequence of instructions are executed.

   LXI H F000 Let [8500] = 98, [F000] = 46
   SPHL
   LXID 8500
   XCHG
   MOV A, M
   ADI 47
   PUSH PSW
   XTHL
   (6 Marks)

   (d) Why do you think it is necessary for 8085 to have two status lines S_1 and S_0.
   (2 Marks)

4. (a) How are instructions classified according to byte size. Give examples.
   (3 Marks)

   (b) If a CALL and RET instructions were not provided in 8085, could it be possible to write subroutines for 8085 microprocessor? If so, how?
   (5 Marks)

(c) Write programs for the following:

   i) To divide two 8-bit binary numbers stored in the memory locations. Store the result in memory locations.

   ii) To unpack a packed two digit BCD number stored in the memory location 8500. Store the result in the next two memory locations.

(12 Marks)

5. (a) Differentiate between memory mapped I / O and I / O mapped I / O techniques.

(4 Marks)

(b) Interface a 16K × 8 ROM and a 16K × 8 R/WM chip to 8085 and write the memory map for the purpose. Starting address of ROM is 0000H. (8 Marks)

(c) Interface an input device and an output device using the ports designed with addresses 40H and 41 H respectively.

(8 Marks)

6. (a) Explain the internal architecture and control word format of 8255 PPI.

(8 Marks)

(b) Describe the internal architecture with mode, control and status word format of 8251 USART.

(10 Marks)

(c) Why should a DMA request have higher priority than other interrupts?

(2 Marks)

7. (a) Distinguish between.

   i) Synchronous and asynchronous communication

   ii) Serial and parallel data transfer.

(4 Marks)

(b) Write an 8085 program to transmit n ASCII characters using serial output pin of 8085.

(8 Marks)

(c) Describe the internal architecture and operation of 8259 programmable interrupt controller.

(8 Marks)

8. (a) Describe the internal architecture of 8279 keyboard display controller and Interface a 3 × 8 keyboard matrix and 6 seven segment display units to 8085 using 8279.

(12 Marks)

(b) Write the control word format of 8253 / 8254 timer and explain the various modes of operations.

(8 Marks)

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Fifth Semester B.E. Degree Examination, July/August 2002

Electronics & Communication Engineering

Microprocessor

89   15

Time: 3 hrs.]   [Max.Marks : 100

Note: *Answer any FIVE full questions.*

1. (a) With a block schematic, describe the functions of the general purpose, special purpose and flag register of 8085.   (10 Marks)

   (b) Define machine cycle and Instruction cycle.   (2 Marks)

   (c) Describe how the address and data lines are demultiplexed? Also write the logic circuit to generate the control signals of 8085.   (8 Marks)

2. (a) What are the functions of the following pins of 8085? i) RST 7.5   ii) $\overline{INTA}$ and iii) Ready.   (3 Marks)

   (b) Describe the addressing modes of 8085 with an example.   (5 Marks)

   (c) Write an 8085 ALP to subtract two BCD numbers using 10's complement arithmetic.   (8 Marks)

   (d) What happens if the clock frequency of 8085 is below $500KHz$?   (4 Marks)

3. (a) Explain the operation performed by 8085 when the following instructions are executed. i)SBB C   ii)RRC   iii) LDAX B   iv) XTHL.   (8 Marks)

   (b) Is it possible to check AC flag status of 8085? Explain.   (4 Marks)

   (c) Write an 8085 ALP to convert an 8-bit binary number into its equivalent BCD value.   (8 Marks)

4. (a) Calculate the count value to implement a subroutine for generating 2 msecond delay using a register pair. Assume the clock frequency of 8085 as 3 MHz. Write an 8085 ALP to downcount from $85_{10} to 25_{10}$. Use the delay routine to display the count value on the data filed.   (10 Marks)

   (b) The number of T-states for JNZ is 10/7. What is its significance?   (2 Marks)

   (c) Explain how CALL instruction is executed by 8085, indicating the operations in all the machine cycles.   (5 Marks)

   (d) The only logical instruction group which sets AC flag is logical AND (ANA/ANI), where as AC flag is cleared by the other logical instructions. Why?   (3 Marks)

5. (a) Distinguish between
      i)   Memory mapped I/O and I/O mapped I/O
      ii) Read only memory and Read/Write memory.   (4 Marks)

   (b) Interface 8K x 8 EPROM and 16K x 8 R/W M to 8085 without shadows. Also write the memory map for the purpose. Starting address of EPROM should be 0000 H.   (8 Marks)

(c) Write the timing diagram for the instruction

    i)   IN 42 H

    ii) STA 2050.   (8 Marks)

6. (a) Describe an input and an output port with addresses 80 and 81 H respectively to connect a linear key board and a 7-segment unit respectively.   (6 Marks)

(b) Describe mode 0 and BSR mode of 8255 PPI.   (6 Marks)

(c) Write an 8085 ALP to read a data byte using serial input line of 8085.
                                        (8 Marks)

7. (a) Interface an 8251 USART to 8085 and write an 8085 ALP to transmit the message GOOD LUCK onto a CRT terminal.   (8 Marks)

(b) Describe the operations of (i) 8259 PIC and   (ii) 8257 DMA.   (12 Marks)

8. (a) Explain the control word format and modes of operations of 8253 timer. Generate a delay of 0.5 second using mode 0 of 8253.   (10 Marks)

(b) Describe the internal architecture of 8279 KB display controller. Interface a 3 × 8 keyboard matrix and 6 common cathode 7 segment display units to 8085 using 8279.   (10 Marks)

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EC5T3

Reg. No. |__|__|__|__|__|__|__|__|__|

Fifth Semester B.E. Degree Examination, January/February 2003

Electronics & Communication Engineering

Microprocessor

Time: 3 hrs.]   [Max. Marks : 100

Note: *Answer any FIVE full questions.*

1. (a) Explain with the help of a neat block diagram, the internal architecture of 8085, detailing all the signals. (10 Marks)

   (b) Give the Flag register structure of 8085 and explain its contents. (5 Marks)

   (c) Draw neatly the Opcode fetch timing diagram and give description of each signal. (5 Marks)

2. (a) Write an assembly language program to generate Fibonocci numbers (0, 1, 1, 2, 3, 5 .... N) upto N where N is also a Fibonocci numbers. Include comments. (10 Marks)

   (b) Explain the function of the following instructions.

   i) XCHG ii) SPHL iii) XTHL iv) NOP v) PUSHPSW. (5 Marks)

   (c) Differentiate between JUMP, CALL and RSTn instructions in their execution. (5 Marks)

3. (a) Write an assembly language program to multiply and divide two 8 bit numbers. The results should be outputed with one second delay. Assume a clock frequency of 3 MHz. (10 Marks)

   (b) A micro computer has 8 K EPROM and two 4 kRAM memories. Using linear decoding give a circuit to interface these memories with 8085. Assume suitable starting addresses. (10 Marks)

4. (a) Differentiate between 8155 and 8255 programmable peripheral interfaces. (5 Marks)

   (b) Differentiate between :

   i) I/O mapped I/O ii) Memory mapped I/O. (5 Marks)

   (c) Interface using 8255 PPI and digital to analog converter to generate a stair case wave form with a step size of 0.5ms and 0.5v. Write the program with comments. (10 Marks)

5. (a) Using only SID and SOD pins explain how you can establish a serial communication between two distant points. (5 Marks)

   (b) Differentiate between synchronous and asynchronous serial data transfer of information. (5 Marks)

   (c) Explain the internal architecture of 8251 with the help of a neat block diagram. (10 Marks)

6. (a) How many interrupts are present in a 8085 MPU and what are their types and differences? (5 Marks)

(b) Explain how two 8259s can be cascaded to achieve more interrupts. (5 Marks)

(c) Give the internal architecture of 8257 DMA controller and explain the functions of various blocks. (10 Marks)

7. (a) Give the block diagram of 8279 key board/ Display controller and explain the functions of

i) SCAN lines ii) Blank display. (10 Marks)

(b) Explain all the modes of 8253 programmable Interval timer with the help of timing diagrams. (10 Marks)

8. (a) What are the aspects of 8275 CRT controller makes it needed for interfacing a CRT with MPU? Explain. (8 Marks)

(b) What are

i) Light pen input   ii) Row buffers (80 × 8)

iii) Character generator ROM   iv) Raster timing and control. (12 Marks)

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USN [ ][ ][ ][ ][ ][ ][ ][ ]
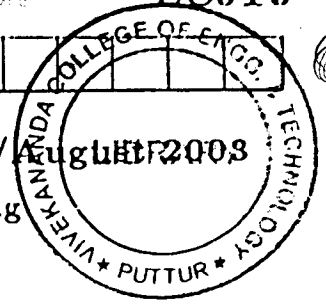
EC5T3

Fifth Semester B.E. Degree Examination, July/August 2003

Electronics & Communication Engineering

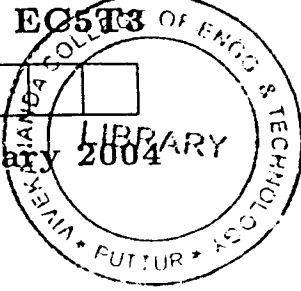### Microprocessor

Time: 3 hrs.] [Max.Marks : 100

Note: *Answer any FIVE full questions.*

1. (a) Explain the functions of following registers in Intel 8085
   i) HL register   ii) Stack pointer   iii) Flag Register. (6 Marks)

   (b) Give the functions of the following pins of 8085 microprocessor.
   i) RST 6.5   ii) HOLD   iii) READY (6 Marks)

   (c) Explain how serial data can be read / sent through SID & SOD pins. Explain the instructions used. (8 Marks)

2. (a) Explain with schematic diagram how seperate address, data signals can be generated from 8085 common address-data lines. (5 Marks)

   (b) Explain the following instructions indicating their addressing modes, flags affected, number and names of machine cycles on the execution of each.
   i) XRA A   ii) SUB M   iii) DCXSP   (iv) RM   v) CC AABBH. (15 Marks)

3. (a) Explain the various steps involved while executing CALL instruction with an example. (5 Marks)

   (b) Explain DAA instruction with example. (5 Marks)

   (c) Design a memory decoding scheme for an 8085 processor system to be configured as follows.

   EPROM   (Single chip)   0000 - 1FFFH
   RAM   (Single chip)   8000 - 9FFFH (5 Marks)

   (d) What is the difference between memory mapped I/O and I/O mapped I/O. (5 Marks)

4. (a) What is meant by priority interrupts ? Explain the operation of different interrupts available in 8085, with the help of circuit diagram. (10 Marks)

   (b) A byte is residing in location 8A00H. Write a program to check each bit starting from MS bit and fill 8 locations starting from 8 A40 H with either FFH or 00H depending on the bit ie, FFH if bit is 1 or 00H if the bit is 0. (10 Marks)

5. (a) Sketch the block schematic of 8255 PPI chip and briefly explain its features. Explain the control word and different modes of operation. (10 Marks)

   (b) Design an interfacing circuit to read data from an ADC using 8255 in memory mapped I/o and write a program for the same. (10 Marks)

6. (a) Explain how data can be transferred using 8251 USART at different baud rates. Also discuss the features available in 8251. (10 Marks)

(b) Explain the features of 8253. Briefly explain its different modes of operation. (10 Marks)

7. (a) Explain how 8259 PIC communicates with 8085. Explain the different functions available in priority interrupt controller. (10 Marks)

(b) With the help of functional diagrams, explain the different features available in 8279. (10 Marks)

8. (a) With the help of functional diagram, explain the different features available in 8275. (10 Marks)

(b) What are the maximum and minimum frequencies that can be generated using 8155 timer section when 8085 clock is 3 MHz. (4 Marks)

(c) Draw a neat timing diagram for the instruction LXI. (6 Marks)

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USN [ ][ ][ ][ ][ ][ ][ ][ ]

Fifth Semester B.E. Degree Examination, January/February 2004
Electronics & Communication Engineering
Microprocessor

[Max.Marks : 100

Time: 3 hrs.]

Note: 1. Answer any *FIVE* full questions.
   2. 8085 instruction set is provided on request.

1. (a) What are addressing modes used in the following instructions? Explain
      MVI M, 03FH
      IN 4
      PUSH B
      RET   (8 Marks)

   (b) Index addressing is not available directly in 8085! What could be done in lieu of this? Explain with an example.   (6 Marks)

   (c) If the CALL and RET instructions were not provided in 8085, could it be possible to write subroutine for this microprocessor? If so how?   (6 Marks)

2. (a) Why do you think it is necessary for the 8085 to have TWO status lines S_1 and S_0 How much time would be required in 8085 to save all GPRS and all status registers?   (4 Marks)

   (b) What is multiplexing? Why is it used in 8085? Discuss the pros and cons of it on the working of the microprocessor.   (6 Marks)

   (c) Discuss the method adopted for devising the Op-codes of 8085. Device the op codes for -
      MVI B, BYTE
      MOV B,C   (10 Marks)

3. (a) For the delay routine below, write an expression that gives a total delay time of the routine as a function of N and the state time T. Determine the value of N required for a 1 ms delay. Assume an 8085 A processor with a 6.144 MHz crystal.

   Delay : LXI B, N
   LOOP : DCX B
            MOV A,B
            ORA C
            JNZ : LOOP

   Write an expression for the delay routine that gives the total delay time as a function of the loop control variable, N, the state time, T and the number of wait states, W.   (10 Marks)

   (b) If the CALL and RET instructions were not provided in 8085, could it be possible to write subroutines for this microprocessor? If so, how? Explain with an example.   (5 Marks)

   (c) Write an ALP to simulate the Decimal adjust after BCD addition without using DAA instruction of 8085.   (5 Marks)

4. (a) Compute the time required to multiply two natural numbers X and Y on 8085. Do the same for division of X by Y? Use suitable program for the purpose.
(14 Marks)

(b) Construct at least one example to show that the program length decreases if GPRs are available in a μP. Use the 8085 instruction set as a guide line.
(6 Marks)

5. (a) Write a subroutine that adds two 4 digit BCD numbers. Assume that the operands are in register pairs BC and DE before the subroutine is called. The subroutine should have the least significant 4 digits of BCD result in register pair DE and the value of the carry in the least significant 4 bits of register C.
(8 Marks)

(b) Why is that in the I/O mapped mode, only 256 input and 256 output devices can be addressed?
(5 Marks)

(c) Interface 4K bytes of EPROM and 6k bytes of RAM to 8085. Use 2716 (2K X 8) and 2142 (K X 4) chips.
(7 Marks)

6. (a) How is the device priority determined in hardware polling?
(6 Marks)

(b) While a device is being serviced, suppose that another device interrupts, if hardware polling is used, when will the interrupt request for this device be served?
(5 Marks)

(c) Generate a square wave with ON time=OFF time=0.5 ms, using 8155. Assume clock frequency = 1 MHz, and address of CR, port A, port B, port C, timer and timer MSB are F8H through FDH.
(9 Marks)

7. (a) Write a subroutine, SCAN, that, when called, scans a 16-key keypad (in 4 X 4 matrix). The subroutine should first direct whether any switch is closed. and if not, return immediately. If one or more switches are closed. the subroutine should return with the code for the switch or switches in the accumulator.
(8 Marks)

(b) Compare hardware and software polling techniques for device identification upon interrupt. Use circuit cost and device identification time as criteria.
(8 Marks)

(c) Discuss the read and write timings of the memory when interfaced with the microprocessor.
(4 Marks)

8. (a) Explain the architecture of various functional blocks of 8259 (interrupt controller).
(7 Marks)

(b) Explain the initialization and operation command words for 8259.
(4 Marks)

(c) Design a frequency counter using an 8253 and 8085 A.
(9 Marks)

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Sixth Semester B.E. Degree Examination, June-July 2009
Microprocessor

Time: 3 hrs.   Max. Marks:100

Note: *1. Answer any FIVE full questions, selecting*
at least TWO questions from each part.
2. Standard notations are used.
3. Missing data be suitably assumed.

PART – A

1   a. Draw the internal architecture of the 8086 and explain. Briefly explain the flag register.
          (10 Marks)
   b. Explain the transient program area (TPA) and system area of a personal computer.
          (10 Marks)

2   a. Write an ALP to multiply two 32 bit numbers stored in consecutive memory locations and store the result in the memory. **(10 Marks)**
   b. Differentiate between Direct program memory addressing, Relative program memory addressing and Indirect program memory addressing with one or two examples. **(06 Marks)**
   c. If DS = AB30H, CS = 8920H, SS = 2BO1H, BP = 2D45H, SP = 0130H, SI = 1234H DI = 4356H then determine the physical address of the following instructions.
     i)   MOV [BP + DI + 5], AH   ii) MOV AL, [5036H]   **(04 Marks)**

3   a. Explain the following string instructions:
     i) MOVSB   ii) Repeat Prefix (REP)   iii) STOSW   iv) SCASB   v) CMPS.
          (10 Marks)
   b. Write an ALP to convert lowercase to uppercase using modular programming approach. Use two far procedures one for reading from keyboard and one for displaying. **(10 Marks)**

4   a. Explain the following DOS system call : int 21H functions:
     i)   1NT 21H, Function 001H
     ii)   1NT 21H, Function 08H
     iii)   1NT 21H, Function 0AH
     iv)   1NT 21H, Function 2BH
     v)   1NT 21H, Function 2DH
          (10 Marks)
   b. Draw the pin-out of the 8259 A programmable interrupt controller (PIC) and describe each pin. **(10 Marks)**

PART - B

5   a. Explain Isolated and Memory – Mapped I/O.   **(05 Marks)**
   b. Explain about the following I/O instructions
     i)   IN with fixed address   ii) IN with variable address   iii) INSB
     iv)   OUT with fixed address   v)OUTSW   **(05 Marks)**
   c. Explain the programmable peripheral interface (PPI) with command bytes of the command register in the 82C55. **(10 Marks)**

6   a. Draw the internal structure of 80 x 87 arithmetic coprocessor and explain. **(10 Marks)**
   b. Explain the following 8087 coprocessor instructions:
     i)   FSQRT;   ii) FSTP;   iii) F SCALE;   iv) F RNDINT;   v) F COM   **(10 Marks)**

7   a. Write short notes on the following:
     i)   Peripheral Component Interconnect (PCI); ii) Parallel printer interface (LPT). **(10 Marks)**
   b. Explain the Universal Serial Bus (USB) with PIN configuration, USB Data, USB commands. **(10 Marks)**

8   a. Write a note on Pentium microprocessor.   **(10 Marks)**
   b. Explain about special 80386 registers.   **(10 Marks)**

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Fifth Semester B.E. Degree Examination, Dec.08/Jan.09
Management and Entrepreneurship

Time: 3 hrs.   Max. Marks:100

Note : *1. Answer any FIVE full questions taking at least two from each part.*
2. All questions carry equal marks.

PART - A

1 a. Define "Management" and bring out its nature and Characteristics.   (05 Marks)
   b. Briefly explain the functional areas of management.   (10 Marks)
   c. List out the levels of management and also list the roles of management.   (05 Marks)

2 a. Define planning and discuss its importance.   (04 Mark.
   b. Briefly explain the steps in decision making.   (08 Marks)
   c. Discuss the various steps in planning.   (08 Marks)

3 a. Define an organization and distinguish between Formal and informal organization.
         (04 Marks)
   b. Discuss any two types of organization structures with a chart highlighting their merits and demerits.   (10 Marks)
   c. Distinguish between;
     i)   Centralization and Decentralization.
     ii)   Selection and Recruitment.   (06 Marks)

4 a. Define "Directing" and list out the principles of Direction.   (04 Marks)
   b. What is motivation? Explain the characteristics.   (10 Marks)
   c. Discuss the essentials of a sound control system.   (06 Marks)

PART - B

5 a. List out the characteristics and qualities of an entrepreneur.   (04 Marks)
   b. Bring out a broad classification of entrepreneur.   (10 Marks)
   c. Explain the stages in entrepreneur process.   (06 Marks)

6 a. List out the characteristics of Small Scale Industries (SSIs).   (06 Marks)
   b. Discuss the impact of Liberalization, Privatization and Globalization on SSIs.   (06 Marks)
   c. List out the supporting agencies of government for SSIs and explain any two of them.
         (08 Marks)

7 a. Classify and List out the institutions that assist SSIs.   (06 Marks)
   b. Explain any two institutions that assist SSIs.   (08 Marks)
   c. Briefly list out the objectives of KSFC.   (06 Marks)

8 a. Briefly out line the contents of a project report.   (06 Marks)
   b. Explain the process of project Appraisal.   (08 Marks)
   c. What is Social feasibility? Explain.   (06 Marks)

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Sixth Semester B.E. Degree Examination, Dec.09/Jan.10
Microprocessors

Time: 3 hrs.   Max. Marks:100

Note: *Answer any FIVE full questions, selecting*
at least TWO questions from each part.

PART – A

1   a. Discuss briefly, how microprocessor has evolved with relevance to its capability, bit size and applications.   **(06 Marks)**
     b. With reference to 8086 CPU, explain the role of the following:
         i)   Instruction queue
         ii)   Segment registers
         iii) General purpose registers.   **(08 Marks)**
     c. Write and explain with relevant timing diagram a memory read operation in 8086 under min mode.   **(06 Marks)**

2   a. Explain the significance of the following pins of 8086 processor:
         i)   ALE
         ii)   MN/$\overline{\text{MX}}$
         iii) $\overline{\text{LOCK}}$
         iv) $\overline{\text{TEST}}$ **(06 Marks)**
     b. Differentiate between the following instructions and explain them with suitable examples:
         i)   Shift and rotate
         ii)   HLT and INT-n
         iii) Jmp and call   **(08 Marks)**
     c. What are the assembler directives? Explain the action performed by the following directives:
         i)   Price db (?)
         ii)   PAI Equ   40h
         iii) ASSUME
         iv)   EXTRN   **(06 Marks)**

3   a. Write an assembly language program to arrange 'N' bytes of data in ascending order. Write relevant comments for each of the instruction used.   **(10 Marks)**
     b. Use string instructions to perform the following:
         i)   Block move of 'N' bytes from 'SOURCE' to 'DESTN'
         ii)   Concatenate two strings.
         Write the complete program with comments.   **(10 Marks)**

4   a. Explain the software and hardware interrupt structure in 8086.   **(08 Marks)**
     b. Give the significance of BIOS & DOS interrupts.   **(06 Marks)**
     c. Differentiate between macros and procedures.   **(06 Marks)**

PART – B

5   a. Show an interface of a matrix keyboard to a 8086 and explain its basic principle of operation.   **(10 Marks)**
     b. With necessary hardware and software, show an interface of 7 segment LED display to a 8086 processor.   **(10 Marks)**

6 a. What is a co-processor? Why it is called so? Give the significance of 8087 NDP. (Numerical data processor). **(06 Marks)**

b. Explain the various data types that 8087 can handle. Give examples. **(06 Marks)**

c. Write a program to obtain the hypotenuse of a right angles triangle given its sides A & B using 8087 interfaced to 8086. **(08 Marks)**

7 a. Explain with relevant block diagram the maximum mode operation of 8086. **(06 Marks)**

b. What are the characteristics of the following?
  i) Peripheral component interconnect (PCI)
  ii) Universal serial bus (USB). **(06 Marks)**

c. Show an interface of a printer to a 8086 processor. Explain the signals of importance. **(08 Marks)**

8 a. Write a note on the various special registers in 80386 CPU. **(06 Marks)**

b. Discuss briefly the two modes of operation in 80386. **(08 Marks)**

c. Describe the basic features of a Pentium processor. **(06 Marks)**

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Sixth Semester B.E. Degree Examination, May/June 2010
Microprocessors

Time: 3 hrs.   Max. Marks:100

Note: *Answer any FIVE full questions, selecting*
at least TWO questions from each part.

PART – A

1   a.   Explain in brief the functions of 'execution unit', with a neat block diagram.   **(07 Marks)**
     b.   Explain: i)   How physical address is generated by 8086?
             ii)   16 byte paragraph boundary.
             iii) Segment override prefix.   **(06 Marks)**
     c.   Explain with at least two examples, the register indirect addressing and register relative addressing. Identify the addressing modes for the following instructions: **(07 Marks)**
       i) MOV AX, BP [100]   ii) XCHG num[BX + SI], SP   iii) MOV CL, 'A'

2   a.   What are the differences between 8086 and 8088 processors?   **(04 Marks)**
     b.   What is wrong, if any, in the following instructions? Correct them and explain the operation performed by these instructions.   **(06 Marks)**
       i) ADD [23A5H], AL   ii) INC [BX]   iii) LEA SI, offset num
     c.   Write an ALP to add N one byte BCD numbers, store the result in memory location.**(10 Marks)**

3   a.   What do you mean by 'assembler directives'? Explain the following assembler directives:
       i) ALIGN 16   ii) PROC …. ENDP   iii) ASSUME   iv) EXTRN….PUBLIC   **(05 Marks)**
     b.   Explain any four conditional branch instructions which check the carry and zero flags simultaneously.   **(06 Marks)**
     c.   Write an ALP to convert a four digit ASCII coded hexadecimal number to its binary equivalent using SEGMENT…….ASSUME directives.   **(09 Marks)**

4   a.   What are the differences between a MACRO and a PROCEDURE? Write an ALP that displays a carriage return and a line feed using a MACRO.   **(10 Marks)**
     b.   Write an ALP to find the GCD of four numbers using a procedure.   **(10 Marks)**

PART – B

5   a.   Describe the purpose of interrupt vector table and the condition (s) which causes the microprocessor to perform the following types of interrupts:
       type 0,   type 1,   type 2,   type 3   and   type 4   **(07 Marks)**
     b.   Write an interrupt procedure that sets the trap flag to enable trap.   **(04 Marks)**
     c.   Write a program that outputs characters to a printer using INT 17h interrupt.   **(09 Marks)**

6   a.   Explain the different types of key switches used in a computer.   **(05 Marks)**
     b.   Draw a block diagram of 7 - segment LED display which is interfaced to a microprocessor using dedicated display controller.   **(10 Marks)**
     c.   Explain the different types of floating point numbers stored in the memory by the coprocessor.   **(05 Marks)**

7   a.   Convert the following:
       i)   Decimal 1259.125 to single precision number   ii) Decimal -29.563 to long real form.
       iii) Short real 010111010110011100….0 to decimal.   **(09 Marks)**
     b.   Write an ALP to find the roots of a quadratic equation $x^2 + 3x + 2 = 0$.   **(11 Marks)**

8   Write short notes on :   a) Minimum and maximum modes of 8086 ;   b) Universal serial bus (USB) ;   c) Special registers of 80386 ;   d) Pentium processor.   **(20 Marks)**

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