POKHARA UNIVERSITY

Level: Bachelor Semester:Fall Year : 2020
Programme:BE Full Marks: 100
Course: Microprocessors Pass Marks: 45
Time : 3hrs.

Candidates are required to give their answers in their own words as far as practicable.

The figures in the margin indicate full marks.

Attempt all the questions.

1. a) Differentiate between Von Neumann and Harvard architecture. Explain fetch, decode and execute cycle in microprocessor with block diagram. 8
   b) What is the importance of DAA instruction? Explain it with an appropriate example along with the necessary calculations. 7
2. a) Write an ALP for 8085 to count the integers available in an array starting from 7 memory location 3500H to 3510H for exactly divisible by two and save the result in the register B. 7
   b) What is the significance of timing diagram? Draw and Explain a well labelled timing diagram of the instruction XRA B and calculate the total execution time if clock frequency is 2 mhz. 8
3. a) What is the use of 8255 PPI? Draw and Explain the control word format of 8255 PPI in I/O mode. 8
   b) Define interrupts. Differentiate between I/O mapped I/O and Memory mapped 7 I/O. 7
4. a) Draw a circuit for 8085 to interface 2KB RAM and 4KB ROM 8
   b) What is Interrupt Vector Table (IVT)? Draw the IVT for 8086 microprocessor 7 and explain different types of 8086 interrupts with respect to IVT. 7
5. a) Discuss the advantage of 8086 over 8085 and explain the concept of pipelining and segmentation 7
   b) Write an assembly language program in 8086 to find the largest number among 10 blocks of data and store the largest value in location "largest" 8

6. a) What is Macro assembler? Differentiate between Macros and Procedure. 7
   b) What do you understand by Null Modem? Show the interface of DTE and DCE with RS-232C. 8
7. Write short notes on: **(Any two)** 2×5
   a) DAM
   b) Flags of 8085
   c) Op codes, mnemonics and operands with example.

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b) What are advantages of serial i/o communication over parallel i/o. Explain how the handshaking assures the reliability in data transfer in parallel i/o communication with examples. 8

7. Write short notes on: **(Any two)** 2×5
   a) Asynchronous serial data communication
   b) Rs-232 standard
   c) Addressing modes

POKHARA UNIVERSITY

Level: Bachelor
Programme: BE
Course: Microprocessors

Semester: Spring

Year : 2021
Full Marks: 100
Pass Marks: 45
Time : 3hrs.

Candidates are required to give their answers in their own words as far as practicable.

The figures in the margin indicate full marks.

Attempt all the questions.

1. a) Define Microcontroller. What are the essential difference between Von Neumann and Harvard architecture? 7
   b) Explain the architecture of 8085 microprocessor? 8
2. a) Draw the timing diagrams for the instruction STA E040H. The address and opcode of the instruction is shown below: 8

Address	Mnemonics	Op code
30FF	STA E040H	32H
3100		40H
3101		41H

   b) What are the types of instruction depending upon word size? Explain different type of addressing modes of 8085 microprocessor. 7
3. a) Draw and explain the functional block diagram of 8259 - PIC. 8
   b) What do you mean by unique and non-unique address decoding? Differentiate between synchronous and asynchronous bus. 7
4. a) Write an 8086 ALP to check whether a given string is palindrome or not. 7
   b) What do you understand by memory interfacing? Design an interfacing circuit to interface one 4KB EPROM and two 2KB RAM for 8085 microprocessor using 3*8 decoder. 8
5. a) What is interrupt vector table? Explain procedures and macros. 7
   b) Compare RS232 and RS422. Explain how two computers can communicate with each other using RS232 standard. 8

6. a) What is the Asynchronous serial data communication? Compare serial and parallel communication. Draw the Block diagram of Intel 8251A USART and explain functionally in detail.

   b) Write the RTL for the instruction LXI D, 9050H in 8085 microprocessor. Explain the operations and uses of DAA, SHLD and LHLD instructions in 8085. 7

7. Write short notes on: **(Any two)** 2×5

   a) Memory mapped I/O and I/O mapped I/O

   b) Handshaking signals

   c) Types of interrupt.

POKHARA UNIVERSITY
SCHOOL OF ENGINEERING

Exam	Final Internal Examination 2080		
Level	B.E.	F M	100
Programme	Computer	PM	45
Year/Part	II/I	Time	3 hrs

Subject: Microprocessor and ALP

Candidates are required to give answers in their own words as far as practicable.
The figure in the margin indicates full marks.
Attempt all the questions

1 a. Differentiate Von Neumann and Harvard Architecture. 7
b. Explain block diagram of 8085 microprocessor in detail. 8

OR

Explain pin layout of 8085 with diagram.

2 a. Describe arithmetic and data transfer group of instructions in 8085. 8
b. Draw a labelled timing diagram for STA instruction. 7

3 a. Write an assembly program for 8085 to find the square of the given numbers from memory location 6100 H and store the result in memory location 7000 H. 7
b: Explain programmable interrupt controller (8259) in detail. 8

4 a: Draw an address decoding circuit to interface 4K X 8 ROM and 1K X 8 RAM with starting address 8000 H. 8
b: Write an 8086 ALP to input string from user and print in reverse order. 7

OR

Write an 8086 ALP to change lowercase string into uppercase.

5 a: What are different pre-defined interrupts in 8086 microprocessor? Explain with the use of Interrupt Vector Table. 8
b: Explain 8255-PPI in detail. 7

6 a: What is the importance of DMAC? Explain 8237A. 8
b: Explain bus structure of microprocessor. What do you mean by synchronous and asynchronous bus? 7

7 Write short note on: (any two) (5+5)
a: Memory mapped IO and IO mapped IO
b: Handshaking
c: RTL Instructions

POKHARA ENGINEERING COLLEGE
Internal Assessment Examination

Level: Bachelor Semester – Fall Year : 2023
Programme: Computer Full Marks: 100
Course: Microprocessor and ALP Pass Marks: 45
Time : 3hrs.

Candidates are required to give their answers in their own words as far as practicable.
The figures in the margin indicate full marks.
Attempt all the questions.

1. a) Define microprocessor along with its applications. Differentiate Harvard and Von-Neumann architecture on the basis of storage. 3+4
   b) What are the types of instruction depending upon word size? Explain different type of addressing modes of 8085 microprocessor. 3+5
2. a) Write an ALP in 8085 to check whether the number stored in memory location 2060H is prime or not. If the number is prime, store FFH in memory location C00FH else store 00H. 7
   b) Define T-state. Draw the labelled timing diagram of the instruction *LXI H, 2050H.* 1+7
3. a) Draw a well labelled architecture of 8086 microprocessor and discuss about BIU and EU. 8
   b) What are assembler directives? Explain any six different assembler directives of 8086 microprocessor. 7
4. a) Write an 8086 program to enter a string from the keyboard. Count the number of repetitions of letter 'a' or 'A'. If the count is even, display "POKHARA" else display "UNIVERSITY. 8
   b) Design an address decoding circuit to interface one ROM chip of 2KB and one RAM chip of 4KB at address 0000H and E000H respectively. 7
5. a) Draw and explain the control word for 8255A PPI. Also, explain the different operating modes of 8255 PPI. 7
   b) What is asynchronous serial data communication? With the help of block diagram explain the working of 8251 USART. 8

6. a) What is Interrupt Vector Table(IVT)? Draw the IVT for 8086 microprocessor and explain different types of 8086 interrupts with respect to interrupt vector table. 8
   b) What is interrupt? Draw well labelled architecture of Programmable Interrupt Controller (PIC) Intel 8259 and explain its working. 7
7. Write short notes on **any two:** 2×5
   a) Difference between I/O mapped I/O and memory mapped I/O.
   b) Polled and vectored interrupt.
   c) Procedures and macros.

POKHARA ENGINEERING COLLEGE

Unit Test

Level: Bachelor | Semester – Fall | Year : 2023
Programme: Computer | Full Marks: 50
Course: Microprocessor and ALP | Pass Marks: 23
Time :1 ½ hrs.

Candidates are required to give their answers in their own words as far as practicable.

The figures in the margin indicate full marks.

Attempt all the questions.

1. a) Explain briefly the architecture of 8085 microprocessor with neat and clean diagram. 8

   b) What do you mean by addressing mode. Discuss the various addressing modes available for 8086 microprocessors. 7

2. a) The following block of data is stored in the memory locations from XX55H to XX5AH. Transfer the data to the locations XX80H to XX85H in the reverse order. 7

   Data: 22,A5,B2,99,7F,37

   b) A system is designed to monitor the temperature of a furnace. Temperature readings are recorded in 16 bits and stored in memory locations starting at XX60H. The higher order byte is stored first and low order byte is stored in the next consecutive memory location. However, the high order byte of all the temperature reading is constant.

   Write a program to transfer low order readings to consecutive memory locations starting at XX80H and discard the high order bytes. 8

3. a) Write a program to find largest No. in a block of data. Length of block is 0A. Store the maximum in location result 7

   b) Write an 8086 program to reverse the given string for 8086. 8

4. Write short notes on **any one:** 1×5

   a) Flag registers.

   b) History of microprocessor

POKHARA UNIVERSITY

Level: Bachelor | Semester: Spring | Year : 2023
Programme: BE | Full Marks: 100
Course: Microprocessors | Pass Marks: 45
Time : 3hrs.

Candidates are required to give their answers in their own words as far as practicable.

The figures in the margin indicate full marks.

Attempt all the questions.

1. a) Differentiate between Microprocessor and Microcontrollers. Explain how the microprocessor is organized in microprocessor-based system. 7
   b) Explain the block diagram of the 8085 microprocessors. 8
2. a) What is flag? Discuss about 8085 associated flags. With suitable examples show how these flags are affected by arithmetic and logical group of instructions. 8
   b) Write an ALP to find out the greatest number among ten 8- bit data stored in memory location C000H to C009H. Also store that value in D000H. 7
3. a) Draw and explain a well labelled timing diagram of the instruction LDA 2000H and calculate the total execution time if clock frequency is 2 KHZ. 8
   b) What is the significance of 8255 PPI? Draw and explain the control word for 8255 PPI in I/O mode. 7
4. a) Draw and explain block diagram of 8259A programmable interrupt controller in detail. 7
   b) Why do we need DMA in microprocessor? Explain the block diagram of DMA controller. 8
5. a) Draw and explain the internal architecture of 8086 microprocessor. Explain flag register of 8086 microprocessor. 8
   b) Explain the salient features of 8086 microprocessor over its predecessor 8085. 7
6. a) Write an ALP for 8086 to user input a string from the keyboard and display its reverse form in the screen. 7
   b) What are advan
   Explain how the
   parallel i/o comm
7. Write short notes on
   a) Asynchron
   b) Rs-232 star
   c) Addressing