

Lumbini Engineering, Management & Science College

Level: Bachelor

Program: BE (3rd)

Course: Microprocessor and ALP

Candidates are requested to give the answer in their own words as far as practicable. The figures in the margin indicate full marks.

Attempt all the questions.

Q 1 a) Differentiate between Von-Neuman and Harvard architecture. (5)

b) Why flag register is essential in microprocessor? Explain different flags of 8085 microprocessor. (6)

c) Explain 3-bus architecture of Central Processing Unit. (4)

Q 2 a) Write an 8085 ALP to find out the largest number in an array available from memory location 2500H to 2510H and store the result in the register B. (5)

b) Draw the timing diagrams for the instruction OUT 4FH. (5)

c) Explain the function of different registers available in 8085 microprocessors. (5)

Q 3 a) Write an 8086 ALP using MASM to accept a string from keyboard and display it in console in reverse order. (8)

b) Define "Assembler Directives". Discuss the function of following directives: EQU, DD, DOSSEG, PROC. (7)

Q 4 a) Specify the functions of the following 8086 instructions: DAA, LEA, IRET, IMUL, CMP, SHL, LOAD. (7)

b) Write an 8085 ALP to find ODD and EVEN number among six bytes of data: 23H, 41H, 56H, AFH, C5H & A7H stored in the memory location starting from 2500H and place the ODD and EVEN numbers in memory location starting from 2600H and 2400H respectively. (8)

Q 5 a) Compare: (8)

i) SRAM vs DRAM

ii) RAM vs ROM

8251

b) Draw the block diagram of 8251A USART and explain in detail. (7)

Q 6 a) Design a circuit to interface a 2 KB ROM and a 4 KB RAM to 8085 microprocessors. The starting address being 2500H. (7)

b) Differentiate between hardware and software interrupts. Explain the Chained interrupts concept for handling multiple interrupts. (8)

Q 7 Writes short notes on any two: (2x5)

a) DMA

b) Registers of 8086 microprocessor

c) Evolution of Microprocessor

National Academy of Science and Technology

(Affiliated to Pokhara University)

Dhangadhi, Kailali

Pre-University Examination

Level: Bachelor

Semester: III- Fall

Year : 2023

Program: B.E. Computer

F.M. : 100

Course: Microprocessor

P.M. : 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) Suppose you need a processor for your project. Between microprocessor and microcontroller, what would you choose? How would you decide? 7
- b) Why do you think implementation of flags are necessary in microprocessor? Explain it with the help of flags implemented in 8085. 8
2. a) An input port is sending a 8-bit datum every 1 sec for 10 seconds. Write a program in ALP for 8085 to store those data to a memory location 5051H. (Delay subroutine is not necessary) 8
- b) Define T-state. Draw the labeled timing diagram of the instruction LHLD B. 7
3. a) How will you interface 4KB RAM and 2KB ROM with 8085? 8
- b) Explain the architecture of 8259 PIC with labelled diagram. 7
4. a) Write a program to add two 32-bit numbers. 8
- b) Explain the control word format of 8255 PPI. 7
5. a) Explain about IVT of 8086. 7
- b) Define assembler directives. Explain the following assembler directives along with their format: The memory model definition, The PROC directive, The DB directive, OFFSET. 8
6. a) Write an ALP for 8086 to implement Pythagoras theorem. 8
- b) Write a program in 8086 ALP to display “COMPUTER” in reverse order. 7
7. Write short notes on any two: 2×5
 - a) Memory mapped I/O vs I/O mapped I/O
 - b) Fetch, decode and execute
 - c) Pipelining in 8086

6. a) Draw and explain the block diagram of Programmable Interrupt Controller (PIC). 7
b) Draw pin diagram of 8086 μ p . Differentiate between Macro and Procedure. 8
7. Write short notes on (Any two) $5*2 = 10$
 - a) Synchronous and Asynchronous Bus
 - b) Polling and Vectored interrupt
 - c) Memory Hierarchy

Friday = 03/09/2023

NEPAL COLLEGE OF INFORMATION TECHNOLOGY

Assessment_Fall_2023

Level: Bachelor

Year: 2024

Programme: BE_CE

Full Marks: 100

Course: Microprocessor and ALP

Pass Marks: 45

Semester _ III

Time: 3 hours

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

The figures in the margin indicate full marks.

Attempts all the questions:

1. a) Define microprocessor . Differentiate between Von -Neumann and Harvard architecture. 7
b) Define addressing mode. What are the available addressing modes in 8085 μ p ? Explain it with appropriate example 8
2. a) Draw and explain a well labelled timing diagram of the instruction LXI D,3050H and calculate the total execution time if the clock frequency is 5Khz. 7
b) Write an ALP in 8085 to transfer 5 bytes of data of memory address starting from 2050H to 3050H .Comment in each line indicate full marks. 8
3. a) Define DMA . Explain read and write operation of DMA with block diagram. 7
b) Define interfacing . Interface two 4KB RAM with 8085 microprocessor and find the range of each memory chips. 8
4. a) Draw the suitable block diagram of 8255A PPI and explain it 7
b) Define pipelining . Draw the internal block diagram of 8086 microprocessor and explain it? 8
5. a) Define assembler directives? What are the assembler directives available in 8086 microprocessor. 7
b) Write an ALP in 8086 to display the string “ NCIT COLLEGE “ in reverse order.



- 6 a) Compare object space method with image space method Explain scan line algorithm for detecting visible surfaces with suitable figure.
b) Explain the difference between Gouraud and Phong interpolation for the simulation of smooth shading across faceted surfaces. Use a diagram to assist in your explanation.

7

1x5

- 7 Write short notes on: (Any One)

- | | |
|----------------------------|------------------------|
| a) RGB Color Model | c) 3D Viewing Pipeline |
| b) Homogenous Co-ordinates | d) GKS, PHIGS, OpenGL |

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

9 February 2024 1:44 pm



Pokhara University
Everest Engineering College
Preboard Assessment

Fall

Level: Bachelor

Program: BE CMP

Semester: 3rd

Course: MALP

Year : 2023

Full Marks: 100

Pass Marks: 45

Time : 3hrs.

Attempt all the questions.

1.
 - a) Define Microprocessor. Compare Von-Neuman and Harvard architecture with necessary diagram. 7
 - b) What are different types of flags of 8085? Suppose content of register A and B is 371 and 5711 respectively. Find the content of flag register after ADD B is performed. 8
2.
 - a) Define t-state. Explain and draw the timing diagram for the instruction OUT 4FH. 7
 - b) Write a program of 8085 to find the 16-bit 1s and 2s complement. Fetch the data from memory location C030H and C040H. Store the result in C050H for 1s and C060H for 2s. And mention the input and output data. 8
3.
 - a) Write an 8086 ALP for MASM in DOS-BIOS mode to display the string in UPPER CASE "your name" on screen without using 09H. 7
 - b) Write an 8086 ALP for MASM in DOS-BIOS mode to reverse the string "Everest Engineering College" on screen without using 09H. 7
4.
 - a) Define Assembler Directives. Explain the types of assembler directives with suitable example. 8
 - b) Explain about the memory hierarchy. Draw and explain about the internal block diagram of 8255A PPI. 8

dozen portno

UNITED TECHNICAL COLLEGE

Level: Bachelor

Programme: BE

Course: Microprocessor & ALP

Year:2024

Full Marks: 50

Pass Marks: 25

Time: 1.5hrs

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

The figures in the margin indicate full marks.

Attempt four questions question number 7 is compulsory.

1. a) Define Microcontroller. What are the essential difference between microprocessor and microcontroller? $2+6=8$
b) What are the types of instruction depending upon word size? Explain different type of addressing modes of 8085 microprocessor. $3+4=7$
2. a) Draw the timing diagram for the instruction IN 80H. Also find the time required to execute OUT if the frequency is 2MHZ. 7
b) What is memory interfacing? Design a memory interface circuit to interface two RAM of 2KB each and a ROM of 4KB starting from memory location 8000H. 8
3. a) What do you mean by RTL? Explain the sequence of the instruction LDA 2000H using RTL specification. $2+6=8$
b) Write an ALP to sort ten eight-bit data at the memory location starting from 3000H in ascending order. 7
4. a) What is assembler and linker? Explain different directive of 8086 microprocessor.
 $3+5=8$
b) What is DMA. Explain Master and slave mode of DMA. 7
5. a) Draw the block diagram of 8086 microprocessors. Explain with example the flags of 8086 microprocessor. 8
b) Explain the RS232 standard for serial data communication. Also explain DTE DTE communication. 7

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6. a) Write an ALP in 8086 to display POKHARA UNIVERSITY without using 09h function. 7

b) What is the Asynchronous serial data communication? Compare serial and parallel communication. Draw the Block diagram of 8251A USART and explain functionally in detail. 8

7. Write short note on (*Any one*) 5

- IVT
- Modes of 8255A
- Vectored and polled interrupt.

Term Test II

Date:	2080/10/17	Full Marks	50
Level	BE		
Programme	BCE	Time	
Semester	III		1.5 hrs

Subject: - Microprocessor & Assembly Language Programming

- ✓ Candidates are required to give their answers in their own words as far as practicable.
- ✓ Attempt All questions.
- ✓ The figures in the margin indicate Full Marks.
- ✓ Assume suitable data if necessary.

1. a. Write an ALP in 8085 to find the largest number among the data stored in the memory location as shown in the table and store the result in [AAAA]H. [8]

[7001]	[7002]	[7003]	[7004]	[7005]	[7006]
31H	0FH	AAH	50H	FFH	2BH

- b. Draw the architecture of the controller which is used to handle multiple interrupt sources and explain its blocks. [4+3]

2. a. List out the advantage of 8086 over 8085 microprocessors. Explain the memory segments in 8086 microprocessor and describe its components. [3+5]
- b. What is IVT in 8086? Explain type 0, type 1, type 2, type 3 and type 4 interrupts of 8086 microprocessor. [2+4]

3. a. Write an ALP in 8086 to find the sum of two immediate 16-bit numbers, 1111H & 2222H and display the result in "Answer". [8]
- b. Draw the control word register of 8255-PPI controller and explain its modes of operation. [4+3]

4. Write short note on: (*Any Two*) [2.5*2=5]
- Single handshake and double Handshake
 - One pass and two pass assemblers
 - Maximum mode vs Minimum mode
 - List the 8086 Addressing modes

POKHARA UNIVERSITY

Level: Bachelor Semester: III Year : 2024 (Internal)
Programme: BE
Course: Microprocessor
(SET -B)


Attempt all Questions

1. a) Describe the block diagram of Harvard Architecture.
b) Describe Addressing mode of 8086 with an Example.
2. a) Explain the functional block diagram of 8085.
b) How the interrupt processing occurs in microprocessor. Explain the vector chain and polled interrupt.
3. a) Draw the timing diagram of MOV B , A.
b) Calculate the total execution time of an instruction STA, 2005H, where frequency is 3.14 MHZ.
4. a) Write an Assembly program in 8086 to find the addition of two 16 bit Numbers.
b) WAP in 8085 to add two numbers located at 2005 H and 2007H. Display sum on Port 1. If carry is generated, display it on Port 2. Store sum on 4001H.
5. Design memory interfacing circuit to interface 16 KB EPROM with 8085 Microprocessor with 0000H.
6. Short Note
 - a) 8259 PIC
 - b) IVT

THE END

POKHARA UNIVERSITY

Level: Bachelor Semester: III Year : 2024 (Internal)
Programme: BE Full Marks: 60
Course: Microprocessor Pass Marks: 27
(SET- A) Time : 2 hrs

Attempt all Question

1. ✓a) Describe the block diagram of Von Neumann Architecture.
b) Describe Addressing mode of 8085 with an Example.
2. a) Explain the functional block diagram of 8086.
b) How the interrupt processing occurs in microprocessor. Explain the vector chain and polled interrupt.
3. a) Draw the timing diagram of MVI B, 20H.
b) Calculate the total execution time of an instruction LDA , 2005H , where frequency is 3.14 MHZ.
4. a) Write an Assembly program in 8086 to find the multiple of two 16 bit Numbers.
b) WAP in 8085 to add two numbers located at 3030H and 4040H. Display sum on Port 1. If carry is generated, display it on Port 2. Store sum on 5050H.
5. Design memory interfacing circuit to interface two 4 KB RAM and one 2 KB ROM with 8085 Microprocessor with 8000H.
6. Short Note
 - a) 8237 DMA Controller.
b) IVT

THE END

POKHARA UNIVERSITY

Level: Bachelor Semester: IV Year : 2024 (Internal)
Programme: BE Full Marks: 50
Course: Microprocessor Pass Marks: 22
(SET-C) Time : 2 hrs

Attempt all Questions

1. a) Difference between Harvard and Von Neumann Architecture.
b) Describe Addressing mode of 8085 with an Example.
2. a) Explain the pin diagram of 8085.
b) How the interrupt processing occurs in microprocessor. Explain the vector chain and polled interrupt.
3. a) Draw the timing diagram of LDA, 2000H.
b) Calculate the total execution time of an instruction MOV A, B where frequency is 3.14 MHZ.
4. a) Write an Assembly program in 8085 to Exchange the contents of memory location.
b) WAP in 8085 to add two numbers located at 3030H and 4040H. Display sum on Port 1. If carry is generated, display it on Port 2. Store sum on 5050H.
5. Design memory interfacing circuit to interface 8 KB EPROM and 4 KB RAM with 8085 Microprocessor using 3x8 decoder.
6. Short Note
 - a) 8255 PPI
 - b) Parallel communication

THE END

POKHARA UNIVERSITY

Level: Bachelor **Semester:** IV **Year :** 2024 (Internal)
Programme: BE **Full Marks:** 60
Course: Microprocessor **Pass Marks:** 27
 (SET- A) **Time :** 2 hrs

Attempt all Question

1. a) Describe the block diagram of Von Neumann Architecture.
b) Describe Addressing mode of 8085 with an Example.
 2. a) Explain the functional block diagram of 8086.
b) How the interrupt processing occurs in microprocessor. Explain the vector chain and polled interrupt.
 3. a) Draw the timing diagram of MVI B, 20H.
b) Calculate the total execution time of an instruction LDA , 2005H , where frequency is 3.14 MHZ.
 4. a) Write an Assembly program in 8086 to find the multiple of two 16 bit Numbers.
b) WAP in 8085 to add two numbers located at 3030H and 4040H. Display sum on Port 1. If carry is generated, display it on Port 2. Store sum on 5050H.
 5. Design memory interfacing circuit to interface two 4 KB RAM and one 2 KB ROM with 8085 Microprocessor with 8000H.
 6. Short Note
 - a) 8237 DMA Controller.
 - b) Series communication.

THE END

POKHARA ENGINEERING COLLEGE
Internal Assessment Examination

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-

- 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.

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:

a) Difference between I/O mapped I/O and memory mapped I/O.

b) Polled and vectored interrupt.

c) Procedures and macros.

2x

Friday = 0.5 प्राप्ति

NEPAL COLLEGE OF INFORMATION TECHNOLOGY

Assessment_Fall_2023

Level: Bachelor

Year: 2024

Programme: BE_CE

Full Marks: 100

Course: Microprocessor and ALP

Pass Marks: 45

Semester _ III

Time: 3 hours

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

The figures in the margin indicate full marks.

Attempts all the questions:

1. a) Define microprocessor . Differentiate between Von -Neumann and Harvard architecture. 7
b) Define addressing mode. What are the available addressing modes in 8085 up ? Explain it with appropriate example 8
2. a) Draw and explain a well labelled timing diagram of the instruction LXI D.3050H and calculate the total execution time if the clock frequency is 5Khz 7
b) Write an ALP in 8085 to transfer 5 bytes of data of memory address starting from 2050H to 3050H .Comment in each line indicate full marks. 8
3. a) Define DMA . Explain read and write operation of DMA with block diagram. 7
b) Define interfacing . Interface two 4KB RAM with 8085 microprocessor and find the range of each memory chips. 8
4. a) Draw the suitable block diagram of 8255A PPI and explain it 7
b) Define pipelining . Draw the internal block diagram of 8086 microprocessor and explain it? 8
5. a) Define assembler directives? What are the assembler directives available in 8086 microprocessor. 7
b) Write an ALP in 8086 to display the string “ NCIT COLLEGE “ in reverse order.

6. a) Draw and explain the block diagram of Programmable Interrupt Controller (PIC). 7
b) Draw pin diagram of 8086 μp . Differentiate between Macro and Procedure. 8
7. Write short notes on (Any two) $5*2 = 10$
a) Synchronous and Asynchronous Bus
b) Polling and Vectored interrupt
c) Memory Hierarchy

Gandaki College of Engineering and Science

Assessment Exam

Level: Bachelor

Year: 2024

Program: BE

Full marks: 100

Course: Microprocessor and Assembly Language Programming

Time: 3hrs

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

The figure in the margin indicates full marks

Attempt all the questions.

1. a) Define Microprocessor. Explain Evolution of Intel Microprocessor in Brief. 7
- b) Draw the block diagram of 8085. Explain each block in brief. 8
2. a) Define addressing Mode. Explain different types of addressing mode in 8085. 8
- b) Write an assembly language program to reverse the given string "MICROPROCESSOR" for 8086. 7

OR

Write a Program to find factorial of a given number entered by user in DOS Screen.

3. a) Write an assembly language program to find the sum of two no. which is input by the user through the key board and display the sum in screen. 7
- b) Ten Bytes of date are stored in location starting from C050H. Write a program to find Largest No. in a block of data. Store the maximum in location C070H.
Data(H):01,0A,23,45,67,32,45,31,AC,BF 8

OR

Write an ALP to find count of prime number from 10's data stored in memory starting from C060H. Also stored the count in C090H.

4. a) What are the directives in assembly language programming? Explain. 8
- b) Define Instruction Cycle, Machine Cycle and T-States ?Draw the timing diagram of instruction MOV A,M. 7
5. a) Write a program to take input from 12 switches connected to PORT B and PORT C lower of 8255A. And display the status of switch to 12 LED connected to PORT A and PORT C upper. Use Address 8003H for Control register. 8
- b) Draw the Block Diagram of 8259A (Programmable Interrupt Controller). Explain it's operation. 7
6. a) Define interrupt vector table. Explain the different type of interrupt in 8086. 8
- b) Define Address Decoding. Draw an interfacing Circuit to interface 4KBX8 EPROM, 2KBX8 RAM at address 8000H. 7

7. Write short notes(any two) 2*5
- a) DMA Controller
- b) Stack Procedure
- c) USART
- d) 8255A

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) Processing speed of Harvard architecture is higher than Von Neumann machine, why? Describe the evolution of Microprocessor. 7
- b) Draw and explain detail about the pin diagram of 8085 microprocessors. Write about the fetch, decode and execute cycle. 8
- 2.a) Write an ALP for 8085 to add two 32-bit numbers from memory locations and store the result in consecutive memory location. 8
- b) Draw and explain a well labelled timing diagram of the instruction LDAX B. And calculate the total execution time if clock frequency is 2 KHZ. 7
- 3.a) Explain the different operating modes of 8255 PPI? Also draw the control word for I/O mode. 7
- b) Differentiate between partial and absolute address decoding. Design memory interfacing circuit with 8085 for 4 KB ROM, 8KB RAM and 16KB PROM with fold back memory space. 8
- 4.a) With a suitable diagram explain the read and write operation with SRAM cell. 8
- b) Draw the internal architecture of 8086 microprocessor and compare the functions of its two basic units. 7
- 5.a) Differentiate between macros and procedure. What is the purpose of assembler directives? Explain any four of them. 8
- b) Write an ALP to convert ASCII to Hexadecimal for 8086. 7
- 6.a) What are the different dedicated interrupt pointers in 8086 microprocessor? Draw and explain the block diagram of 8086 IVT table along with related memory address. 8
- b) Write an ALP for 8086 to input a string from a keyboard and print it in reverse order. 7
7. Write short notes on: (Any two) $5 \times 2 = 10$
- Interrupt sequence of 8086
 - I/O mapped I/O and Memory mapped I/O
 - Memory segmentation

NEPAL ENGINEERING COLLEGE

Level: Bachelor

Programme: B.E.

Course: Microprocessors & ALP

Unit Test

Year

Full Marks: 50

Pass Marks: 22.5

Time : 1.5hrs.

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.

- a) Differentiate between Von Neumann and Harvard architecture. 8
— Explain fetch, decode and execute cycle in microprocessor with suitable diagram.

- What are the different rotate instructions used in 8085 instruction sets? Explain with the help of simple example for each of them. 7

- a) Draw the internal architecture of the 8-bit microprocessor and briefly describe about that. 8

- b) Draw and explain a well labelled timing diagram of the instruction LXI B, 2545H and calculate the total execution time if clock frequency is 2 KHZ. 7

- 3.a) What are the different flags of 8085 microprocessor? Explain the addressing modes of 8085 microprocessor with example of each. 8

- b) Write an ALP to find out the greatest number among ten 8-bit data's stored in memory location C000H to C009H. Also store that value in D000H. 7

4. Write short notes on: (Any one)

$5 \times 1 = 5$

a) Microprocessor and Microcontroller

b) Explain the function of CMP, SHLD, STAX, LXI, CALL