

POKHARA UNIVERSITY

Level: Bachelor
Programme: B.E
Subject: Microprocessors

Semester – Fall

Year : 2013
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. Describe the evolution of Microprocessor. The processing speed of Harvard architecture is higher than Von Neumann machine, Explain Why? 8
2. Draw the functional block diagram of 8085 microprocessor and explain the functions of each block in detail. 7
3. Draw and explain the timing diagram for the instruction LDA 9000H 8
4. Write an ALP for 8085 to count the integers available in an array starting from memory location 2500H to 2510H for exactly divisible by two and save the result in the register B. 7
5. Explain the addressing modes of 8086 with suitable examples. 8
6. Write an 8086 ALP which will input the student's Registration number from the keyboard. If the registration number is valid it will display the student's name else it will display 'Not enrolled' 7
7. The six data bytes are stored from memory location 3000H to 3005H. Write an 8086 ALP to transfer block of data to new location 5000H to 5005H. 7
8. Draw an address decoding circuit for 8085 to interface 2KB RAM and 4KB ROM. 8
9. Two computers are to be connected with each other via modems. Using RS-232 standards, explain the connection. How can they be connected directly without any modems using RS 232 standard? 7

10. What is Interrupt priority of 8085 Microprocessor? Write an assembly language program to check to see if RST 6.5 is pending, assuming the microprocessor completing RST 7.5 interrupt request. If it is pending, enable RST 6.5 without affecting any other interrupts; otherwise, return to the main program.

11. a) Explain how the 20 bit physical address is calculated in 8086 Microprocessor? Compare 8086 Microprocessor with 8088 Microprocessor

b) WAP in 8085 to transfer ten bytes data from 5050H to 5060H only if data is between 30H and 70H else store 00H in the next table.

12. Write short notes on any two:

- a) Macro assembler (8086)
- b) Flags of 8086
- c) RISC vs. CISC

POKHARA UNIVERSITY

Level: Bachelor
Programme: BE
Course: Microprocessors

Semester: Spring

Year : 2013
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) Explain Harvard architecture and give reason behind this architecture being faster than Von-Neumann architecture. 7
- b) Define flags and addressing modes. What are the different addressing modes used in 8085 microprocessor? Explain with examples. 8
2. a) Draw the timing diagrams for the instruction IN 4FH. 8
- b) Write a 8085 program to find the largest of three numbers. 7
3. a) 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
- b) Design a circuit to interface a 8 KB ROM to 8085 microprocessor. The starting address being 1000H. 7
4. a) Draw the functional block diagram of 8086 Microprocessor and explain how segmentation and pipelining concepts are implemented in this microprocessor. 8
- b) Write an assembly language programming for 8086 to find the square root of a given number. Assume that a number is of two digits and is perfect square. 7
5. a) Specify the functions of the following 8086 instructions: 7
 AAA, LDS, DIV, MOVSB, NOT, CALL, ROL
- b) Define IVT. Explain interrupt vector table for 8086 microprocessor. 8
6. a) Explain the RS232C standard for serial communication. Explain its advantages and disadvantages. 7
- b) Explain the functional block diagram of 8259 PIC. 8
7. Write short notes on: (Any two) 2×5
 - a) Synchronous and Asynchronous data bus
 - b) Modes of operation of 8255
 - c) Memory mapped I/O and I/O mapped I/O.

Level: Bachelor
Programme: BE
Course: Microprocessor

Semester: Fall

Year : 2014
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.

- ✓ Describe the Von Neumann's architecture of a computer system.
- ✓ Differentiate between a microprocessor and microcontroller.
- ✓ Explain the addressing modes of Intel 8085.
- ✓ Starting from the address D000_h to D009_h there is an array of ten data. Write a programme using 8085 instructions to find out how many times the data 08h repeats in the given array. Store the result at address C000_h.
- 1) Write an assembly language program for Intel 8085 to compute

$$\sum_{i=1}^n \frac{x_i}{2}$$

Where X_i are three numbers stored at memory locations A001H, A002H and A003H. Store the result at memory location starting at D000H.

- a) What is the significance of Timing Diagram? Draw the labeled timing diagram for the instruction OUT 80H.
- b) Draw the block diagram of Intel 8255 PPI, and explain the functions of the sub blocks.
- a) Explain how two 2048*8 RAM are interfaced with 8085 microprocessor and also find the address range for each RAM chips.
- b) Write an 8086 ALP for MASM to find a square of a given number.
- a) Draw the functional block diagram of 8086 microprocessor and compare the functions of its two basic units.
- b) 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.

6. a) Write an 8086 ALP for MASM to display the string "POKHARA UNIVERSITY" without using 09h on screen. Explain all steps and assume necessary data.
- b) Two computers are to be connected with each other via modems. Using RS-232 standards, explain the connections? Also, show the connections for null modem.
7. Write short notes on: (Any two)
- a) Features of Intel 80386
- b) Synchronous & asynchronous data transmission
- c) Macros.

POKHARA UNIVERSITY

Level: Bachelor
Programme: BE
Course: Microprocessors

Semester: Spring

Year : 2014
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) What are the essential differences between:
 - i. Von Neumann and Harvard Architecture.
 - ii. Microprocessor and Microcontroller.
- b) Define flags and addressing modes. Explain the role of all the flag bits in 8085 microprocessor with essential examples.
2. a) Explain the function of the following 8085 program. What will be the output of the program displayed at port 01H when the program is executed if the value of BYTE1 is equal to FFH.


```

MVI A,BYTE1
ORA A
JM  OUTPRT
OUT 01H
HLT
OUTPRT:
CMA
ADI 01H
OUT 01H
HLT

```
- b) Specify the function of the following instructions from 8085 instruction set.
 - i. LXI
 - ii. LDAX
 - iii. JC
 - iv. PUSH
 - v. SBB
- c) Write a 8085 program to sort given 10 numbers from memory location 2200H in the ascending order.

3. a) What is the significance of Timing Diagram? Draw the labeled diagram for the instruction OUT 4FH.
- b) Explain how 1KB RAM, 2KB ROM and 4KB EPROM are interfaced with 8085 microprocessor and also find the address range for chips.
4. a) Explain control word format of 8255 PPI for I/O mode.
- b) Draw the functional block diagram of 8086 Microprocessor and explain it and illustrate how its architecture is faster than its predecessors.
5. a) Write an 8086 ALP for MASM to find the square of a given number.
- b) Write a program to reverse the given string of 8086.
6. a) Define "Assembler Directives". Explain the following assembler directives along with their format: The Memory Model Directive, The PROC directive, The .STARTUP directive, The .EXIT directive and The END directive.
- b) Two computers are to be connected with each other via modem. Using RS-232 standards, explain the connection. How can they be connected directly without any modems using RS 232 standards?
7. Write short notes on: (Any two)
 - a) One pass and two pass assembler.
 - b) RS 422A.
 - c) Direct Memory Access.

POKHARA UNIVERSITY

Level: Bachelor
Programme: BE
Course: Microprocessor

Semester: Spring

Year : 2017
Full Marks: 100
Pass Marks: 45
Time : 3hrs.

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

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Attempt all the questions.

1. a) Explain the Microprocessor based System with basic block diagram. 5
b) Why the speed of Von-Neumann architecture is low than Harvard architecture? Explain Von-Neumann architecture with various registers used in it. 5
2. c) Why the flag is also called PSW? Explain with the help of 8085 flag register. 5
a) What are the different rotate instructions used in 8085 instruction set? Explain with the help of a simple example for each of them. 7
b) What is the difference between a counter and a time delay loop? Explain with the help of a flowchart. 8
3. a) Classify the Bus on the basis of their function. Differentiate between Synchronous and Asynchronous Bus. 7
b) What do you mean by address decoding? Design a scalable address decoding circuit to interface 64-byte RAM memory and 128-byte ROM memory. 8
4. a) With a suitable diagram explain the write operation with a DRAM cell. 7
b) Write an assembly language program in 8086 which reads a string from the keyboard and then displays the string in the reverse order. For example if the input string read from the keyboard is "POKHARA UNIVERSITY", the output should be "YTISREVINU ARAHKOP". 8
5. a) Define addressing mode. Explain the addressing modes of 8086 with proper examples. 7
b) What is the significance of interrupt in microprocessor? Explain the 8

- IVT with suitable figure.
6. a) Explain EU and BIU with the help of well labelled block diagram of 8086 microprocessors. 7
b) Differentiate between synchronous and asynchronous serial data communication. Also explain briefly the protocols of synchronous serial data communication. 8
 7. Write short notes on: (Any two) 2×5
a) RTL Instruction Descriptions
b) Memory mapped I/O Vs I/O mapped I/O
c) Serial data transmission standards

POKHARA UNIVERSITY

Level: Bachelor
Programme: BE
Course: Microprocessors

Semester: Fall

Year : 2017
Full Marks: 100
Pass Marks: 45
Time : 3 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) Compare and contrast Microprocessor and Microcontroller. 7
b) Draw the block diagram for the internal architecture of Intel 8085 and explain in brief. 8
2. a) Explain in brief the different addressing modes of 8085 with proper examples. 7
b) Write an 8085 ALP that checks an array of ten memory location starting from C000H for odd numbers including zero and transfers the odd numbers in memory location starting from C00EH. 8
3. a) Explain bus structure of a Microprocessor. What do you mean by Synchronous and Asynchronous Bus? 7
b) With a suitable diagram explain the read and write operation with a SRAM cell. 8
4. a) Draw the block diagram of 8255 PPI and explain in brief. 7
b) What are the significance of assembler's directive in microprocessor? List all the assembler's directive of 8086 microprocessor and explain them with example. 8
5. a) How interrupt processing occurs in a microprocessor? Explain vector chain and polled interrupt. 7
b) Write an assembly language program in 8086 which reads a string from a keyboard and then displays the string in the reverse order. 8
6. a) Write a program in 8086 to find whether a number is positive or negative. 7
b) RS232 forms a basis for serial data communication standard. Explain with diagram. 8
7. Write short notes on: (Any two) 2×5
 - a) Memory mapped I/O versus I/O mapped I/O
 - b) Flags in 8085
 - c) Serial Communication

POKHARA UNIVERSITY

Level: Bachelor Semester: Fall Year : 2018
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.

7. Write short notes on: (Any two)

- a) Microprocessor vs. Micro controller
- b) Difference between absolute and partial decoding.
- c) RS-232C standard

- 1. a) Explain the microcomputer Architecture. 5
- b) Compare the Harvard and Von-Neumann architecture. 5
- c) Draw and explain the timing diagram of MVI M, 05H. 5
- 2. a) Write an AIP in 8085 microprocessors to add two 32-bit numbers stored in memory locations starting from 2000H and 3000H respectively. 8
- b) Define T-state. Draw the labelled timing diagram for the instruction XRA B. 7
- 3. a) Explain the functional block of 8237-DMA controller with its pin and internal register. 7
- b) Explain memory interfacing? How do you interface two PROM and one RAM with 4kb and 2 kb memory respectively with 8085 microprocessor? 8
- 4. a) What is the use of 8259 PIC? Draw and explain the functional block diagram of 8259 PIC. 8
- b) Explain the addressing modes of 8086 with suitable example? 7
- 5. a) What do you mean by identifiers and statements? Explain the following directives: 8
- TITLE, DOSSEG, MODEL, CODE, DATA, ENDP**
- b) Write a program in 8086 to display "MICROPROCESSOR IS EASY TO LEARN" in lower case. 7
- 6. a) Differentiate between synchronous and asynchronous serial data communication and explain the uses of BISYNC protocol in communication. 8
- b) 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. 7

FOKHARA UNIVERSITY

Level: Bachelor
Programme: BE
Course: Microprocessors

Semester: Spring

Year : 2018
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) Differentiate between Von-Neumann and Harvard Architecture. Explain fetch, decode and execute cycle in microprocessor with block diagram. 8
b) Draw the functional architecture of a 8-bit microprocessor along with diagram and briefly describe about the interrupts available in it. 7
2. a) Draw and explain a well labelled timing diagram of the instruction MVI A, 32H and calculate the total execution time if clock frequency is 2 MHz. 7
b) Write 8085 assembly programming language to find the smallest number among ten 8-bit data's stored in memory location 5000H to 5009H. Also store that value in 9100H and display on output device 51H. 8
3. a) Define T-state, Machine cycle and Instruction cycle. What are the different addressing models address in 8085 microprocessor? 7
b) What are the three basic functions microprocessor should satisfy to interface any memory chip? Explain how 4096*8 PROM is interfaced with 8085 microprocessor. 8
4. a) Draw and explain the control word for 8255A PPI. Also, explain the different operating modes of 8255 PPI. 7
b) Write an assembly language program in 8086 to display the string "Computer Engineering" at console. 8
5. a) What do you understand by macros and procedures? State and explain the different types of assembler directives in 8086 8
b) What are the different dedicated interrupt pointers in 8086 microprocessor? Draw and explain the block diagram of 8086 INT 7

table along with related memory address.

6. a) How DTE and DCE is interfaced with minimum lines using RS232 cable? Explain how two computers can be connected without modem
b) What are the different methods of parallel data communication Explain in detail.
7. Write short notes on: (Any two)
a) 8251- USART
b) Maximum mode and minimum mode of 8086
c) Microprocessor & Microcontroller



POKHARA UNIVERSITY

Level: Bachelor
 Programme: BE
 Course: Microprocessor

Semester: Fall

Year : 2019
 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) Explain the Instruction execution Cycle of microprocessor 5
 b) Compare Von-Neumann's Architecture with Havard architecture. 5
 c) What are Flags? Write the function of all the flags present in 8085 microprocessor. 5
2. a) What are the different flags of 8085 microprocessor? Explain the addressing modes of 8085 microprocessor with examples of each. 2+6
 b) Write an ALP in 8085 to perform the following addition: 7
 $1^2 + 2^2 + 3^2 + 4^2 + 5^2 + 6^2 + 7^2 + 8^2 + 9^2$
3. a) Define T-state. Draw the neat and labeled timing diagram for instruction MOV M, B. 8
 b) Write the function of DMA with suitable diagram and explain the execution of DMA in Master mode and Slave mode. 7
4. a) Differentiate between partial and complete address decoding. Design an address decoding circuits for two 16KB ROMs at address 2000H. 9
 b) Explain Polled and Vectored interrupt with suitable block diagram. 6
5. a) Draw the pin diagram of 8086 microprocessor and explain the different types of FLAGS of 8086. 7
 b) Write an 8086 ALP for MASM in DOS mode to print each word of a string in different lines. 8
6. a) What are the different pre-defined interrupts in 8086 microprocessor? Explain with the help of block diagram of 8086 IVT. 8
 b) How can you transfer the data between two computers without using modem? Draw and explain the interface with handshake Signal. 7

7. Write short notes on: (Any two)

- a) Explain the instruction : MVI, ANI, CMP, JNC, NOP
- b) RISC and CISC
- c) RS232 Standard

POKHARA UNIVERSITY

Level: Bachelor
Programme: BE
Course: Microprocessor

Semester: Spring

Year : 2015
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) Enlist the greatest breakthrough in microprocessor so that modern processors are available for personal computer. 5
b) With reference of bus advancement differentiate between Harvard Architecture and Von Neumann architecture. 5
c) Explain with example the addressing mode of 8085 microprocessor. 5
2. a) Define instruction set and formats, opcodes, mnemonics and operands with examples. 8
b) Write an 8085 program for the following type of addition 7

$$1^2 + 2^2 + 3^2 + \dots + 9^2$$
3. a) Define T-state. Draw the timing diagrams for the instruction OUT 0FH. 8
b) Write a program to take input from 4 switches connected to PC3-PC0 and display the status of the switches to 4 LEDs connected to PC7-PC4 of 8255 PPI. 7
4. a) What is memory interfacing? Interface two PROM and one RAM with 8KB and 4KB memory respectively with 8085. 8
b) Explain the Programmable Interrupt Controller (8259 A) with a suitable block diagram. 7
5. a) Do you think micro assembler is essential for microprocessor to execute the program? If yes, explain with the difference between
 - i. END and ENDP
 - ii. DB and DW
 - iii. PROC and EXTRN
 - iv. PUBLIC and GLOBAL
 7
b) Write an 8086 program to find square root of a given number. Given 8

that number is a perfect square of two digits.

6. a) Explain with example the flags of 8086 microprocessor.
b) Write the difference between serial and parallel communication. Explain the RS232C standard for serial communication.
7. Write short notes on: (Any two)
a) 8255 PPI
b) 80386 microprocessor and its type
c) Procedures and Macros

POKHARA UNIVERSITY

Level: Bachelor
Programme: BE
Course: Microprocessor

Semester: Spring

Year : 2019
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) What are the major differences between Microprocessor and Microcontroller? Why Harvard architecture is superior to Von-Neumann Architecture? 4+4
- b) What are the interrupt pins of 8085 microprocessor? Explain the different methods of handling multiple interrupts. 7
2. a) Write an assembly language program in 8085 to check whether the number stored in memory location D001 H is positive or negative. If positive store it in C001 else store in C002. Comments in program indicate full marks. 8
- b) What are the different types of machine cycles in 8085 instructions? Draw the labelled timing diagram for the instruction LDA 30DA H. 2+5
3. a) Design an Addressing Decoding circuit to interface 2kB RAM, chips each of size 256 bytes with starting address 1001 H. 8
- b) Define interrupts. Differentiate between I/O mapped I/O and Memory mapped I/O. 7
4. a) Explain memory interfacing? How do you interface two chips of 4K RAM and one chip of 2K ROM of 8085 with and without fold back addresses, starting address is 8000H? 8
- b) Write an 8086 ALP to display the string "POKHARA UNIVERSITY" in reverse order. 7
5. 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) What is Macro assembler? Differentiate between Macros and Procedure. 7

6. a) What are the significance of assemblers directive in microprocessor? List all the assembler's directive of 8086 microprocessor and explain them with example. 8
- b) What is Synchronous and Asynchronous data transmission? Explain the RS232C standard for serial communication. 2+5
7. Write short notes on: (Any two) 2×5
 - a) SRAM and DRAM
 - b) RIM and SIM Instruction
 - c) RS 423A

POKHARA UNIVERSITY

Level: Bachelor
Programme: BE
Semester: Fall
Course: Microprocessors

Year : 2020
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) 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 I/O. 7
4. a) Draw a circuit for 8085 to interface 2KB RAM and 4KB ROM. 7
b) What is Interrupt Vector Table (IVT)? Draw the IVT for 8086 microprocessor and explain different types of 8086 interrupts with respect to IVT. 8
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 assembly? Differentiate between Macros and Procedure. 7
b) What do you understand by Null Modem? Show the interface of DTE and DCE with RS-232C. 7
7. Write short notes on: (Any two) 7
a) DAM
b) Flags of 8085
c) Op codes, mnemonics and operands with example.

POKHARA UNIVERSITY

Semester: Full

Year : 2021

Full Marks: 100

Pass Marks: 45

Time : 3hrs.

Level: Bachelor
Programme: BE
Course: Microprocessors

(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. What is microprocessor? Explain the evolution of microprocessors. 7
2. Draw the internal architecture of 8085 microprocessor. Also, explain each block in brief. 8
3. What is addressing mode? Explain different addressing modes of 8085 with examples. 8
4. Define machine cycle and instruction cycle. Draw the neat and labeled timing diagram for 8085 instruction NOP. 7
5. 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. 8
6. Define in-state buffer. Explain with suitable circuit diagram how read and write operations are performed in SRAM chip. 7
7. Design an address decoding circuit to interface one ROM chip of 2KB and one RAM chip of 4KB at address 0000H and E000H respectively. 8
8. Draw the suitable block diagram of 8255A PPI and explain. 7
9. What are assembler directives? Explain any six different assembler directives of 8086 microprocessor. 8
10. Define INT. Explain different pre-defined interrupts in 8086 microprocessor along with suitable block diagram. 7
11. 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". 7
12. Define DTE and DCE in serial communication. Explain RS232C serial data standard along with suitable circuit diagram. 8

7. Write short notes on: (Any two)

- a) Operation of CALL and RET instructions
- b) Peripheral-mapped I/O and Memory-mapped I/O
- c) Synchronous Vs asynchronous serial data communication

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

POKHARA UNIVERSITY

Level: Bachelor
Programme: BE
Course: Microprocessors

Semester: Fall

Year : 2022
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 Microprocessor along with its applications. Differentiate Harvard and Von-Neumann architecture on the basis of storage. 7
b) What are the types of instruction depending upon word size? Explain different type of addressing modes of 8085 microprocessor. 8
2. a) Write an 8085 program to find smallest number among array of numbers. 8
b) Define T-state. Draw the labelled timing diagram of the instruction LXI H, 5051H. 7
3. a) Design an Addressing Decoding circuit to interface 16KB ROM chips with 8085 microprocessors. 8
b) Draw a well labelled architecture of 8086 microprocessor and discuss about BIU and EU. 7
4. a) Explain about IVT of 8086. 7
b) What are serial and parallel communication? Explain basics of RS-232. 8
5. a) Explain the working of DMA. Mention its advantages over programmed and interrupt driven I/O. 8
b) Write an ALP in 8086 to display POKHARA UNIVERSITY without using 09h function. 7
6. a) 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
b) What is the importance of DAA instruction? Explain it with an appropriate example along with the necessary calculations. 7

7. Write short notes on: (Any two)

- a) Memory mapped I/O vs I/O mapped I/O
- b) Address Bus, Data Bus and Control Bus
- c) Flags in 8086