

POKHARA UNIVERSITY

Level: Bachelor	Semester: Spring	Year : 2021
Programme: BCA		Full Marks: 100
Course: Microprocessor		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. Write about the evolution of microprocessor.
b) Explain the fetch and decode cycle for NOP routine in sap 1. | 7
8 |
| 2. a) Write SAP-I program to perform as $(20-36+45)10$. The data are stored in AH, BH, CH, and result in DH.
b) Describe the architectural difference of SAP-2 with SAP-1. Explain the advancement in SAP-2. | 7
8 |
| 3. a) Draw and explain the timing diagram for instruction LHLD.
b) What is interrupt? Write about types of interrupt explaining each. | 7
8 |
| 4. a) Write the instruction to load 65H hexadecimal number in register C and 95H in accumulator A. Display the number 65H in port 0 and 95H in port 1.
b) Explain DMA operation with required timing diagram. | 8
7 |
| 5. a) What is interfacing? Explain the block diagram of 8255A PPI.
b) Write a program to read DIP switches from group B and display the value in group A in mode 0. | 7
8 |
| 6. a) Define and explain serial and parallel communication.
b) Write a program in 8086 to find the square of the given number. | 7
8 |
| 7. Write short notes on any two:
a) Microcontroller and microprocessor
b) GPIS-IEEE 488
c) RS - 232 | 2×5 |

POKHARA UNIVERSITY

Level: Bachelor
Programme: BCA
Course: Microprocessor

Semester: Fall

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) Explain the essential differences between: | 8 |
| i. Von Neumann and Harvard Architecture | |
| ii. Microprocessor and Microcontroller | |
| b) What are different types of instruction sets in SAP-1. WAP to find the square of 4 using SAP-1. | 7 |
| 2. a) Explain the block diagram of SAPI computer architecture. | 8 |
| b) What is an instruction? "SAP I is a basic computer that performs basic operations of microprocessor". Verify this statement using 2,4,A hexadecimal numbers | 7 |
| 3. a) What are the major architectural differences of SAP-II computer with SAP-I computer. Explain. | 7 |
| b) Define Instruction Cycle. Draw the neat and labelled timing diagram of an instruction LXI B, 2065H and explain. | 8 |
| 4. a) Explain the addressing modes of 8085 microprocessor? | 8 |
| b) Write a program to find 1's and 2's complement of 8-bit number where starting address is 2000 and the number is stored at 3000 memory address and store result into 3011 and 3012 memory address. | 7 |
| 5. a) Explain the process of DMA operation. | 8 |
| b) Explain the bit set/reset mode of operation of 8255 programmable peripheral interface. | 7 |

OR

Write a program to initialize 8255 PPI in the configuration given below:

- i. PORT A:simple input
- ii. PORT B:simple output
- iii. PORT C_L:output
- iv. PORT C_U:input

6. a) What is RS232 standard? Explain Null modem Connection in brief. 7
- b) Write an 8086 ALP in DOS mode to display the string "I like microprocessor" in reverse order. 8
7. Write short notes on **any two:** 2×5
- a) Serial asynchronous communication
 - b) Controller/Sequencer in SAP-I computer
 - c) flags of 8085

POKHARA UNIVERSITY

Level: Bachelor
Programme: BCA
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) Define microprocessor. How it is different from Microcontroller? Explain in details. 7
- b) Write a program in SAP-I to perform the operation:
 $(34+12-40+17)_{10}$ 8
2. a) Draw the internal architecture of 8085 microprocessor unit. 8
 Explain about various flags used.
- b) Draw the pin signals diagram of 8085 microprocessor. Also 7
 describe about address bus and data bus.
3. a) Describe the fetch and execution cycle of LDA routine for 8
 SAP-I structure with necessary timing diagram.
- b) Write a SAP-I program using mnemonics that will display the 7
 result of 5+4-6.
 Use DH, EH, and FH for the data
4. a) What is machine cycle? Draw the timing diagram of 7
 MVI C, 32H and explain it.
- b) What is tri-state logic? Draw and explain DMA controller. 8
5. a) What is interfacing? Draw and explain the block diagram of 8
 8255A PPI.
- b) Explain different modes of operation of 8255A. 7
6. a) Explain RS232C interfacing with diagram. Also write the 8
 difference between parallel and serial communication.
- b) Write a program in 8086 ALP to display the string 7
 "MICROPROCESSOR IS INTERESTING"

7. Write short notes on any two: 2×5
- a) SAP-I instructions
 - b) Jump instructions of 8085
 - c) Addressing modes of 8085

POKHARA UNIVERSITY

Level: Bachelor
Programme: BCA
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) Define microprocessor. Explain the bus organization with figure. 7
b) Explain the Program counter of SAP I computer. How does adder/subtractor perform in SAP I computer? 8
2. a) Draw and explain the LDA routine of SAP-I. 7
b) Draw and explain the block diagram of SAP II computer with its instructions. 8
3. a) Draw the timing diagram of STA 2050H and explain it. 7
b) What are the addressing modes of 8085 microprocessor? Explain the timing and control unit of 8085 microprocessor. 8
4. a) Write an ALP in 8085 to find the difference of 16-bit numbers stored at location 2030H and 2040H. Also store the final result at location 2050H. 7
b) Explain the Direct Memory Access (DMA) operation with diagram. Also write the applications of DMA. 8
5. a) What is interfacing? Draw and explain the block diagram of 8255A PPI. 8
b) Explain the input/output mode of operation of 8255 programmable peripheral interface. 7
6. a) What is the necessity of interface like RS-232 between devices like computers, modems? Explain IEEE 488-1978 standard digital interface. 7
b) Explain different addressing modes of 8086 microprocessor. 8

OR

Write a program in 8086 ALP to display the string "POKHARA UNIVERSITY"

7. Write short notes on **any two**:

2×5

- a) W-bus
- b) Serial communication
- c) Jump instructions of 8085
- d) Modes of parallel communication

POKHARA UNIVERSITY

Level: Bachelor
Programme: BCA
Course: Microprocessor

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) Define microprocessor. Explain different types of bus in Microprocessor. 7
- b) Draw the SAP-I architecture and explain each block in short. 8
2. a) Write an ALP to perform 6-6+6-6 in SAP-I. Also write the same in machine language. 8
- b) Explain flags and bidirectional register of SAP-II in brief. 7
3. a) Draw the timing diagram of IN01H and explain it. 7
- b) Draw and explain the different blocks of 8085 microprocessor. 8
4. a) Explain DMA with block diagram and its various operations. 8
- b) Explain the different modes of operation of PPI device 8255A. 7
5. a) Explain RS232C interfacing with diagram. How two computers are connected without modem? 8
- b) Differentiate between Synchronous and Asynchronous Serial Communication. 7
6. a) Write an ALP in 8085 to transfer 6-byte of data stored in memory location C000H to the new memory location starting at C050H. 7
- b) Draw the block diagram of 8086 microprocessor and explain. 8

OR

Write a program in 8086 ALP to display the string "Rainy seasons are lovely."

7. Write short notes on any two: 2×5
- a) 8085 vs 8086
- b) Evolution of microprocessor
- c) Addressing modes of 8085.

POKHARA UNIVERSITY

Level: Bachelor
Programme: BCA
Course: Microprocessors

Semester: Fall

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) What is a microcontroller? Explain the evolution of microprocessor in addition to technological improvements of hardware. | 7 |
| | b) Design a block diagram of a SAP-I computer. Explain the function of each components. | 8 |
| 2. | a) Write SAP-I program to perform as $(20-36+45)10$. The data are stored in memory AH,BH,CH and result in DH memory. | 7 |
| | b) Describe the architectural difference of SAP-II with SAP-I Explain all the advancements in SAP-II | 8 |
| 3. | a) Draw and Timing diagram of STA 2070H and explain it. | 7 |
| | b) Draw and explain the different blocks of 8085 microprocessor. | 8 |
| 4. | a) Describe the flag register of 8085 microprocessor. If PSW is 5FH then discuss the present status of the processor. | 7 |
| | b) Write a program that takes two 8 bits data from registers B and C and multiply both data bytes before storing in A20BH location and in PORT2. | 8 |
| 5. | a) Explain the Direct Memory Access (DMA) operation with diagram. Also write the applications of DMA. | 7 |
| | b) Compare 8085 microprocessor with 8086 microprocessor. | 8 |
| 6. | a) Write a program to take input from 8 switches connected to port B of 8255A and displaytches at 8 LEDS connected to port A such that it operates on mode 0 for input and mode 1 for output. | 7 |
| | b) Explain the signaling standard of RS 232C. How can we use it as Null Modem? | 8 |
| 7. | Write short notes on any two : | 2×5 |
| | a) Addressing modes of 8085 | |
| | b) IEEE488-1978 | |
| | c) Asynchronous serial data transfer. | |

POKHARA UNIVERSITY

Level: Bachelor

Semester: Fall

Year : 2016

Programme: BCA

Full Marks: 100

Course: Microprocessor

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 different types of Buses in microprocessor? Describe the achievement of microprocessor including different application area. 7
- b) What are different types of instruction sets in SAP-1? WAP to find the square of 4 using SAP-1. 8
2. a) Compare and contrast between SAP-1 and SAP 2 including advancement of SAP2 over SAP1. 7
- b) Explain the block diagram of SAPI computer architecture. 8
3. a) Explain the register of SAP-II. why bidirectional register is used. 7
- b) What is timing diagram Explain the timing diagram for MVIA, 01H 8
4. a) Draw the internal architecture of 8085A microprocessor and explain each block. 8
- b) What are different types of addressing modes? Explain 7
5. a) Explain the control word format of 8255 PPI. 7
- b) What is RS232 standard? Explain Null modem Connection in brief. 8
6. a) Explain DMA with necessary diagram. 7
- b) Write a program for 8086 in MASON to display "MICROPROCESSOR IS INTERESTING". 8
7. Write short note on any two: 2×5
 - a) A/D characteristics and specifications
 - b) Flags in 8085
 - c) Instruction set in SAP2

POKHARA UNIVERSITY

Level: Bachelor
Programme: BCA
Course: Microprocessor

Semester - Fall

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.

The figures in the margin indicate full marks.

Attempt all the questions.

1. a) Explain the evolution of microprocessor.
b) How do you program to solve arithmetic problem using sap-i instruction set (33+1C-12)?
2. a) Draw the block diagram of Sap-II computer and explain its components.
b) Draw and explain the timing diagram of MVI A,23H.
3. a) Write an ALP for absolute division of two numbers.
b) What is an instruction set? State different addressing modes used in 8085.
4. a) What is DMA? Explain memory read operation.
b) Explain the working mode of 8255A.
5. a) Explain the types of interrupt that is given to a microprocessor.
b) Discuss interrupt service routine.
6. a) Discuss the flag register of 8086.
b) Find out the difference between 8085 and 8086 microprocessor.
7. Write short notes on any two:
 - a) Von-Neumann Architecture
 - b) RAM
 - c) Flags of 8085

POKHARA UNIVERSITY

Level: Bachelor
Programme: BCA
Course: Microprocessor

Semester: Fall

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) Define microprocessor. Draw and explain the block diagram of microprocessor. 8
- b) Define W-bus. Differentiate SAP-I from SAP-II Architecture. 7
2. a) Write a SAP-I program that performs this operation: $8+4-3+5-2$. Use addresses BH to FH for the data. 8
- b) Draw and explain the block diagram of the SAP-II architecture. 7
3. a) Draw the timing diagram for the instruction IN4FH. 7
- b) Write a program in 8085 ALP to find the largest of three numbers. 8
4. a) Define addressing modes. Explain the different addressing modes, Used in 8085 microprocessor with examples. 7
- b) Write an ALP to transfer 6-byte of data stored in memory location Coo oH to the new memory location starting at CO50H Data is, A2,52,32,12,10,FA 8
5. a) What is DMA? Explain the operation of DMA technology. 7
- b) Explain the generation of control words formats for 8255A with necessary diagram. 8
6. a) Explain RS 232C standard for serial communication mentioning its pros and cons. 7
- b) Write an ALP program in 8086 which inverts 10 byte string data 8

OR

Explain the functional block diagram of 8086 microprocessor.

7. Write short notes on **any two:** 2×5
 - a) 8086 instruction
 - b) 8085 interrupts
 - c) IEEE 488 GPIS

POKHARA UNIVERSITY

Level: Bachelor Programme: BCA	Semester – Spring	Year : 2015 Full Marks : 100 Pass Mark : 45
Course: Microprocessor		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) Define Microprocessor and Explain the application of microprocessor 7
- b) How do you program to solve this arithmetic problem using SAP-I instruction set, $(11+1A-22)_H$ 8
2. a) Explain the flag register of SAP-II. Why bidirectional register is used? 8
- b) Explain the block diagram of SAP-I computer architecture. 7
3. a) Draw and explain the timing diagram for an instruction out 01H 8
- b) Write a program in 8085 ALP to subtract from no. stored in location COOOH to COO1H if negative send to port address 01H otherwise 00H. 7
4. a) What is addressing mode? Describe the different types of addressing mode used in 8085 microprocessor. 8
- b) What is DMA? Explain the operation of DMA technology. 7
5. a) Write a program to take input from 8 switches connected to port B of 8255A and display the status of switches at 8 LED connected to port A of 8255A(for mode 1) 8
- b) What is interrupt? Describe all the interrupt pins used in 8085 microprocessor. 7
6. a) Differentiate between Intel 8085 and 8086 microprocessor. 8
- b) Write an 8086 program to display the string "MICROPROCESSOR" in reverse order. 7
7. Write short notes on any two: 2×5
 - a) Flag register of 8085
 - b) IEEE 488-1978
 - c) SAP-I Vs SAP-II

POKHARA UNIVERSITY

Level: Bachelor
Programme: BCA
Course: Microprocessor

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.

- i. a) Define system bus. Explain the microprocessor bus structure with the block diagram. 7
- i. b) How do you program to solve this arithmetic problem using SAP-I instruction set, $(10+1A-21)_H$. 8
- i. a) Describe the architectural difference of SAP-2 with SAP-1. Explain all the advancements in SAP-2. 8
- i. b) Explain the block diagram of SAP – I computer architecture. 7
- i. a) Draw the timing diagram for LDA C040H and explain it. 7
- i. b) Define instruction. Explain instruction set of 8085 microprocessor. 8
- i. a) A sequence of 20 signed numbers is stored at memory location 6000H onwards. You need to write an 8085 assembly language program to transfer all the negative numbers to memory location 5050H onwards and positive numbers to location 4040H onwards. 8
- i. b) What is DMA? Explain the operation of DMA technology. 7
- i. a) Explain the functional block diagram of 8255A – PPI. 7
- i. b) What is 8255 Programmable Peripheral Interface? Write initialization instruction to set up port A and port C_{upper} as an output port, Port B and port C_{lower} as an input port. 8
- i. a) What is serial communication and describe types of serial transmission format. 8
- i. b) Explain instruction set of 8086 microprocessor. 7

OR

Write a program in 8086 to find the square of a given number.

Write short notes on any two:

- a) Interrupt of 8085
- b) RS 232C Interfacing
- c) Pipelining in 8086

2x1

POKHARA UNIVERSITY

Level: Bachelor Semester - Fall Year : 2014
Programme: BCA 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) What do you mean by microprocessor? List the application with technical example. 7 |
| | b) Describe the different instruction sets of SAP-I with example. 8 |
| 2. | a) Write the SAP-I program to perform the following operation. 7 |
| | b) Explain the architecture of SAP-II with necessary diagrams. 8 |
| 3. | a) Draw the timing diagram of instruction MVI A, 32 H. 7 |
| | b) Draw and explain the different block k of 8085 microprocessor. 8 |
| 4. | a) Write a program on 8085 ALP to find factorial of no. stored in address C000H and store the result in D000H. 7 |
| | b) What is the role of HALT and HOLD signals in DMA process? 8 |
| 5. | a) What is interfacing? Draw and explain the block diagram of 8255A-PPI. 8 |
| | b) Write a BSR control word subroutine to set bits PC7 and PC3 and reset after 10ms 7 |
| 6. | a) What is data communication? Compare serial and parallel communication. 7 |
| | b) Differentiate between Intel 8085 and 8086 microprocessor. 8 |

OR

Write a program in 8086 ALP to display the string "microprocessor".

7. Write short notes on *any two*: 2x5

 - a) Microinstruction
 - b) Addressing modes of 8085
 - c) GPIS-IEEE-488