

GURU NANAK INSTITUTE OF TECHNOLOGY
An Autonomous Institute under MAKAUT
2022
Microprocessors & Microcontrollers
EI402

TIME ALLOTTED: 3 HOURS

FULL MARKS: 70

The figures in the margin indicate full marks.

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

GROUP – A

(Multiple Choice Type Questions)

Answer any **ten** from the following, choosing the correct alternative of each question: **10×1=10**

- | | Marks | CO No. |
|--|-------|---------|
| 1.(i) A 16 bit address bus can generate _____ address | 1 | CO1 |
| a) 32767 | | |
| b) 25652 | | |
| c) 65536 | | |
| d) 32 | | |
|
(ii) System bus contain |
1 |
CO1 |
| a) address bus | | |
| b) data bus | | |
| c) control bus | | |
| d) all of these | | |
|
(iii) Which one of the following is not a vectored interrupt |
1 |
CO3 |
| a) TRAP | | |
| b) INTR | | |
| c) RST 7.5 | | |
| d) all of these | | |
|
(iv) Which one of the following registers of 8085 microprocessor is a 16 bit register |
1 |
CO1 |
| a) B | | |
| b) H | | |
| c) L | | |
| d) Program Counter | | |
|
(v) Which one of the following instructions of 8085 microprocessor is used to complement the accumulator content |
1 |
CO2 |
| a) DAA | | |
| b) CMA | | |
| c) HLT | | |
| d) EI | | |

- | | | | |
|--------|---|---|-----|
| (vi) | Which of the following instructions of 8085 is comes under immediate addressing mode
a) MOV B,C
b) ADD D
c) RST-1
d) MVI B, 02H | 1 | CO2 |
| (vii) | The contents of the Program Counter (PC), when the microprocessor is reading from 2FFF H memory location, will be
a) 2FFE H
b) 2FFF H
c) 3000 H
d) 3001 H | 1 | CO1 |
| (viii) | Which one of the following instructions is a 3-byte instruction?
a) MVI A
b) LDAX B
c) JMP 2050 H
d) MOV A,M | 1 | CO2 |
| (ix) | Which of the following is the first machine cycle instruction for an 8085 Intel microprocessor.
a) Memory write cycle
b) Operation code fetch cycle
c) Memory Read cycle
d) Input/output read cycle | 1 | CO2 |
| (x) | 8086 microprocessor is
a) 16 bit processor
b) 8 bit processor
c) 32 bit processor
d) 64 bit processor | 1 | CO1 |
| (xi) | The size of internal RAM of 8051 is
a) 16 bytes
b) 32 bytes
c) 64 bytes
d) 128 bytes | 1 | CO1 |
| (xii) | In 8051, if RS0 = 1 and RS1 = 0, then which register bank is selected
a) Bank0
b) Bank1
c) Bank2
d) Bank3 | 1 | CO1 |

GROUP – B**(Short Answer Type Questions)**

(Answer any three of the following) 3 x 5 = 15

	Marks	CO No.
2. Draw the timing diagram of-(i) MVI B,06H	5	CO2
3. Describe the function of the following pins of 8085 microprocessor i. ALE ii. HOLD iii. HLDA iv. INTA v. RESET	5	CO1
4. How does ALE signal demultiplex the AD0 – AD7 bus? Explain with diagram	5	CO1
5. Draw the flag register of 8086 and explain the function of each flag.	5	CO4
6. What is Program Status Word (PSW) in 8051? Explain bit-wise.	5	CO1

GROUP – C**(Long Answer Type Questions)**

(Answer any three of the following) 3 x 15 = 45

	Marks	CO No.
7. a) Draw the timing diagram of : 8090H STA, 8001H	8	CO2
b) Define instruction cycle, machine cycle & T-state.	3	CO2
c) Write an assembly language program for 8085 microprocessor, to add two 8 bit numbers stored in the memory locations and 8000H and 8001H, and store the result in 8002H sum being 16 bit.	4	CO2
8. a) Draw the necessary hardware to generate different RST codes in priority basis and explain.	5	CO1
b) What are the functions of the following instructions-(i) EI (ii) SIM	5	CO1
c) Explain the different modes of addressing in 8085 with proper examples and explanation.	5	CO1
9. a) Draw the control word for I/O mode in 8255 and explain bit wise.	6	CO3
b) Explain the microprocessor initiated operations in 8085.	5	CO1
c) Explain how bidirectional communication can be done between two computer using 8255	4	CO3
10. a) Draw and explain the architecture of 8086.	6	CO1
b) Explain the signals associated with minimum mode in 8086	4	CO4
c) What is pipelining in 8086? How many memory segments are in 8086? Explain the method of physical address generation of 8086.	5	CO1,CO4
11. a) Draw the structure of internal RAM of 8051.	5	CO1
b) Explain the special function registers of 8051.	5	CO1
c) Write short note on Timers in 8051.	5	CO1