GURU NANAK INSTITUTE OF TECHNOLOGY
An Autonomous Institute under MAKAUT
2022
MICROPROCESSOR AND MICROCONTROLER
EE601

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)	If the address of control word register of 8255 IC is 0B H, then the address of port B is a) 08H b) 09 H c) 0A H d) 0C H	1	CO5
	(ii)	A single instruction to clear the lower four bits of the accumulator in 8085 microprocessor a) XRI 0F H b) ANI F0 H c) ANI 0F H d) XRI F0H	1	CO1
	(iii)	The double byte addition instruction stores the result in a) accumulator b) any register c) HL register pair d) none	1	CO2
	(iv)	Which special function register play a vital role in the timer/counter mode selection process a) TMOD b) TCON c) SCON d) PCON	1	CO2
	(v)	The BIU prefetches the instruction from memory and store them in a) memory b) register c) queue d) stack	1	CO3
	(vi)	Which one of the following instructions is a 3-byte instruction? a) MVI A, 30H b) LDAX B c) JMP 2050 d) MOV A, M.	1	CO4

(vii)	Which special function register play a vital role in the timer/counter mode selection process a) TMOD b) TCON c) SCON d) PCON	1	CO5
(viii)	If MN/MX is high, the 8086 operates in a) minimum mode b) maximum mode c) both a) and b) d) medium	1	CO3
(ix)	In the I/O mode, the 8255 ports work as a) reset pins b) set pins c) programmable I/O ports d) only output ports	1	CO7
(x)	In which of the following modes of the 8255 PPI, only port C is taken into consideration? a) BSR mode b) Mode 0 of I/O mode c) Mode 1 of I/O mode d) Mode 2 of I/O mode	1	CO7
(xi)	In 8051 microcontroller, RS1=1, RS0=1, the register bank selected is a) Bank 0 b) Bank 1 c) Bank 2 d) Bank 3	1	CO5
(xii)	8051 series has how many 16 bit registers? a) 2 b) 3 c) 1 d) 0	1	CO6

GROUP – B
(Short Answer Type Questions)

Answer any ***three*** from the following: **3×5=15**

		Marks	CO No
2.	Explain the functions of (a) HLDA (b) READY (c) SOD (d) ALE (e) RESET pins of the 8085 microprocessors	5	CO1
3.	Draw the timing diagram for the instruction in 8085: MVI E, FF H.	3	CO1
4.	With a neat sketch, discuss the internal architecture of 8051.	5	CO3
5.	What is Program Status Word (PSW) in 8086? Explain bit-wise.	5	CO2
6.	Discuss about BSR mode of operation of 8255 programmable peripheral chip.	5	CO5

GROUP – C

(Long Answer Type Questions)
Answer any ***three*** from the following: **3×15=45**

			Marks	CO No.
7.	(a)	Draw and explain the architecture of 8086 processor	8	CO2
	(b)	Explain the process of generation of physical address in 8086.	4	CO2
	©	Explain with example, the difference between memory mapped I/O and peripheral mapped I/O.	3	CO1
8.	(a)	Explain the functional block diagram of 8085 in detail.	6	CO1
	(b)	Specify the register contents and the flag status after the execution of each instructions MVI A, 49H MVI B, 57H ADD B ORA A HLT	5	CO4
	(c)	Explain the priorities of interrupt in 8085.	4	CO1
9.	(a)	What are SFR in 8051 microcontroller?	5	CO3
	(c)	Write an assembly language program for 8085 microprocessor, to subtract two numbers in the memory locations 8000H and 8001H, store the result in 8002H for positive, 8003H for negative and 8004H for zero respectively.	10	CO4
10.	(a)	Show the control word format of 8255 IC for I/O mode.	3	CO5
	(b)	Draw the necessary hardware to address 1K memory chip in 8085 microprocessor, where address ranges from 0400 H to 07FF H.	8	CO1
	(c)	Write an assembly language program to multiply two 16 bits numbers in 8086.	4	CO4
11.		Write short notes on any three.	3 X 5=15	
	(a)	Modes of 8254	5	CO5
	(b)	8253 IC	5	CO5
	(c)	Timers in 8051	5	CO3
	(d)	PIC microcontroller	5	CO3
	(e)	Registers of 8051	5	CO3
	(f)	Memoy segmentation in 8086	5	CO2