GURU NANAK INSTITUTE OF TECHNOLOGY
An Autonomous Institute under MAKAUT
2021
MICROPROCESSOR AND MICROCONTROLER
EE601

TIME ALLOTTED: 3HR **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)	The RD, WR, M/IO is the heart of control for a _____ mode a) minimum b) maximum c) compatibility mode d) conditional mode	1	CO1
	(ii)	After getting power-on in 8085 microprocessor, the first instruction for execution will be fetched from memory location a) 0000h b) 8000h c) A000 h d) FFFF h	1	CO1
	(iii)	RAR instruction in 8085 microprocessor rotates the accumulator content a) through carry flag b) without carry flag c) through auxiliary carry flag d) without auxiliary carry flag	1	CO2
	(iv)	Which one of the following instruction of 8085 microprocessor is used to complement the accumulator content a) DAA b) CMA c) HLT d) EI	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)	In a minimum mode there is a _____ on the system bus a) single b) double c) multiple d) both (A) and (B)	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)	When the microcontroller executes some arithmetic operations, then the flag bits of which register is affected a) PSW b) SP c) DTPR d) PC	1	CO6

GROUP – B
(Short Answer Type Questions)

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

			Marks	**CO No**
2.		Describe the function of the following pins of 8085 microprocesso i) ALE ii) S_0 and S_1 iii) INTA iv) READY v) HLDA	5	CO1
3.	(a)	Define Instruction cycle, machine cycle, and T state	3	CO1
	(b)	Discuss the main functions of BIU and EU units of 8086 microprocessor.	2	CO1
4.		What is Program Status Word (PSW) in 8051? Explain bit-wise.	5	CO5

5.	(a)	What is the function of Instruction Queue in 8086?	3	CO3
	(b)	How many address lines are there in 8086 and how many of them are multiplexed?	2	CO3
6.		Discuss about BSR mode of operation of 8255 programmable peripheral chip.	5	CO7

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	CO3
	(b)	Explain the process of generation of physical address in 8086.	7	CO3
8.	(a)	Discuss how the combinations of the signals IO/$\overline{M}$, S_0, S_1 indicate different operations of the 8085 microprocessor.	5	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	CO2
	(c)	Draw the timing diagram for the instruction in 8085: MVI E, FF	5	CO1
9.	(a)	What is SFR in 8051 microcontroller?	4	CO5
	(b)	Explain the program control instructions of 8051 microcontroller.	3	CO5
	(c)	A block of ten data is stored in memory location 8050H. Write an assemble language program using 8085 to transfer this block to 90A0 H.	8	CO2
10.	(a)	Show the control word format for 8255 IC.	5	CO7
	(b)	Sketch and explain the interface of PPI 8255 to the 8085 microprocessor to lit up a set of eight LEDs connected to port C of 8255 IC.	4	CO7
	(c)	Write an assembly language program to lit up the LEDs connected to PC_3 and PC_7 continuously.	6	CO7
11.		Write short notes on any three.	3 X 5	
	(a)	Modes of 8254	5	CO7
	(b)	Functional block diagram of 8253	5	CO7
	(c)	Timers in 8051	5	CO5
	(d)	PIC microcontroller	5	CO5
	(e)	On chip RAM of 8051 Microcontroller	5	CO1
	(f)	Explain SIM and RIM instruction	5	CO3