(3 Hours) [Total Marks: 75

N.B.: (1) **All** questions are **compulsory.**
(2) **Figures** to the **right** indicate **maximum** marks.
(3) Answers to the **two sections** must be written in the **same answer-book.**

SECTION I

Q1	A	Explain how programmable timer/counter chip IC 8254 can be used in square wave mode and hardware triggered strobe mode with the help of neat timing waveforms.	07
	B	Describe in detail, the software and hardware interrupts available in case of 8085 microprocessor chip.	06
		OR	
Q1	P	With the help of neat diagram explain how 8-bit D/A converter can be interfaced to buses of the 8085 microprocessor chip.	07
	Q	State the features of IC 8279. Draw its logic block diagram and explain in detail the operation of its keyboard section.	06
Q2	A	Explain the meaning of the following 8086 instructions with suitable examples: (i) AAA (ii) SAR (iii) REPE	06
	B	Explain the Read and Write Cycles of 8086 µP in the Minimum Mode with the help of timing diagrams.	06
		OR	
Q2	P	Explain the Interrupt Process carried out in 8086 µP. Also explain its Vector Interrupt Table.	06
	Q	Explain the Request and Bus Grant in Minimum Mode and Maximum Mode of 8086 µP with the help of the timing diagrams.	06
Q3		Differentiate between 8031 and 8051 microcontrollers. State the advantages of 8051 microcontroller over 8031microcontroller. Explain the bits of PSW register of 8051microcontroller.	13
		OR	
Q3	P	Explain the role of each of the bits: a) TCON Register, b) IE Register in 8051 microcontroller.	07
	Q	Explain the branching instructions: Absolute, Long and Short jumps with reference to 8051microcontroller.	06

SECTION II

Q4	A	Describe and draw the pin configuration of Atmel 89C2051.	06
	B	Discuss the square wave generation using 89C51 microcontroller. Write a program	06

to create a square wave of 50% duty cycle on bit 0 of port 1.

OR

Q4	P	Explain the use of Precision Analog comparator in designing ADC using Atmel 89C2051	06
	Q	Explain Idle and Power down mode in Atmel microcontrollers. Give their importance in power consumption.	06
Q5	A	Explain with the help of an example any three of the following instructions of the PIC microcontrollers: i) clrwdt, ii) addwf f, F(W) , iii) swapf f, F(W) , iv) decfsz f, F(W).	06
	B	Give an account of the PIC reset action.	06

OR

Q5	P	Briefly describe the memory organization of the PIC 16C6X/7X microcontrollers.	06
	Q	Give a brief account of the CPU registers of PIC 16CXX microcontroller.	06
Q6	A	How will you interface four switches and four LED's to a Standard Parallel Port? Draw its circuit and write the necessary software in any High Level Language, such that the LED's indicate the Status of the switches.	07
	B	Explain in brief the registers of a Standard Parallel Port.	06

OR

Q6	P	How will you interface a 4x4 matrix keyboard to a PIC? Draw its circuit and explain the necessary logic that how the PIC recognizes a particular key when it is pressed.	06
	Q	Draw a circuit diagram to Interface a stepper motor to a PIC. Also explain the logic in driving the stepper motor using the necessary software.	07