Question Paper

Exam Date & Time: 05-May-2023 (09:30 AM - 12:30 PM)

MANIPAL ACADEMY OF HIGHER EDUCATION

INTERNATIONAL CENTRE FOR APPLIED SCIENCES
END SEMESTER THEORY EXAMINATION-MAY 2023
IV SEMESTER B.Sc.(APPLIED SCIENCES) IN ENGG.

MICROCONTROLLER AND APPLICATIONS [IMET 241 - S2]

Marks: 50 **Duration: 180 mins.**

Answer all the questions.

Missing data if any, may be suitably assumed.

1)		Explain the architecture of 8051 with the help of a neat schematic diagram.	(5)
	A)		
	B)	Explain PSW flag register with an example showing the effect of all the flags after any arithmetic operation.	(5)
2)		Write an assembly language program to generate a rectangular wave of 1 KHz, having a 25% Duty Cycle from the TxD pin of 8051, using Timer1. Assume XTAL frequency of 12 MHz.	(5)
	A)		
	B)	Explain the structure of internal RAM with a schematic diagram depicting each block with their address range and name of these registers.	(5)
3)		Explain all 5 addressing modes of 8051 in detail along with examples and a diagram for each addressing mode.	(5)
	A)		
	B)	Write an assembly language program to subtract two 16-bit (2 byte) numbers residing at internal memory location. Assume first number is in memory location 40h (LB) and 41h (HB). Second number is in memory location 60h (LB) and 61h (HB). Store the result in memory location starting from 40h (lower byte).	(5)
4)		Write an assembly language program to find the largest number in an array of ten numbers. Assume, numbers are stored in an external memory location starting from 9400H. Store the result in the memory location 9500H.	(5)
	A)		
	B)	Discuss the role of TCON register in handling interrupts giving its bit details. Draw the schematic diagrams.	(5)
5)		Write an assembly language program to generate an 8-bit BCD down counter counting from 99h to 00h. Store the result in memory location	(5)