Question Paper

Exam Date & Time: 26-Nov-2022 (09:00 AM - 12:00 PM)

MANIPAL ACADEMY OF HIGHER EDUCATION

FIFT SEMESTER B.TECH END SEMESTER EXAMINATIONS, NOV/DEC 2022

MICRO-CONTROLLERS [ICE 3152]

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

A

Answer all the questions.

Instructions to Candidates: Answer ALL questions Missing data may be suitably assumed

1)		Write a code using nested loop to perform a move to accumulator action 1000 times. [CO2 BL3 PO3]	(2)
	A)		
	B)	Draw a neat block diagram of 8051 microcontroller and list down its important features. [CO1 BL1 PO1]	(3)
	C)	Explain the concept of register banks in 8051. What is the function of following pins of 8051 microcontrollers : [CO1 BL2 PO1] a. T0,T1 b. P0.0-P0.7 c. A8-A15 d. TXD	(5)
2)		Explain the importance of ORG. If given 8051 microcontroller has 7FFFH as the address of its last location of on-chip ROM, What is the size of the on-chip ROM? [CO1 BL4 PO2]	(2)
	A)		
	B)	Write a program using delay subroutine to generate a square wave of 25% duty cycle on bit 3 of port 1. [CO2 BL3 PO3]	(3)
	C)	Write a program to receive eight bit data serially. The program should find position of first high (1) in data input. The data is scanned from D7 to D0. Save the result in memory location 50H. [CO3 BL4 PO3]	(5)
3)		How is stack used in case of a CALL instruction? [CO2 BL2 PO1]	(2)
	A)		
	B)	Write a program to toggle an I/O pin every 1.5s using timer interrupts. Assume XTAL = 16MHz. [CO3 BL3 PO3]	(3)
	C)	Explain debounce logic in matric keypad. With a neat diagram explain the process of keypress detection. [CO5 BL2 PO4]	(5)
4)		Compare the features of CISC and RISC processor architecture. [CO4 BL4 PO4]	(2)
	A)		
	B)	What is the fuction of CPSR in ARM processor? Explain the meaning of different bits of CPSR register. [CO4 BL1 PO1]	(3)
	C)	With a neat diagram, explain the operating modes of ARM. [CO4 BL1 PO1]	(5)
5)		Explain pipelining in ARM7 TDMI processor. [CO4 BL2 PO4]	(2)

A)

B)	Explain how PWM is achieved in LPC2148 microcontroller. What is the function of PWMMR and PWMMCR register. [CO4 BL2 PO1]	(3)
C)	Write a note on the timer register of LCP2148. Calculate the value of prescale register required to achieve a delay of 1ms at 60MHz PCLK. [CO4 BL3 PO3]	(5)

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