



Subject Code: 2172001

Date: 23/11/2019

Subject Name: Microcontrollers and Embedded Systems

Time: 10:30 AM TO 01:00 PM

Total Marks: 70

Instructions:

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

		MARKS
Q.1	(a) List out the different bit of 8051 flag register and explain any one in brief.	03
	(b) Explain the difference between Von-Neumann and Harvard Architecture.	04
	(c) Write a short note on Matrix Keyboard interfacing with 8051 microcontroller.	07
Q.2	(a) Discuss the difference between Microprocessor and Microcontroller based system.	03
	(b) Define embedded system and discuss in detail with example.	04
	(c) Explain serial data transmission and reception in 8051 microcontroller.	07
	OR	
	(c) Draw an interfacing diagram of DC motor with 8051 and explain in detail.	07
Q.3	(a) How to access ROM space in 8051 C? Explain in brief.	03
	(b) Discuss the bit configuration of TCON register in brief.	04
	(c) Write an Embedded C program for 8051 to find number of positive and negative data among ten byte of array. Send number of positive data to Port P3 and negative data to Port P2.	07
	OR	
Q.3	(a) Explain the interfacing of Relay with microcontroller.	03
	(b) Draw the internal structure of PORTA of 8051 microcontroller.	04
	(c) Explain interfacing of analog to digital converter (ADC) with microcontroller.	07
Q.4	(a) Explain Arithmetic operation in PIC18F Family.	03
	(b) Discuss the concept of stack & stack pointer in PIC18F452 in brief	04
	(c) Draw & explain the memory organization in PIC18F4xx	07
	OR	
Q.4	(a) Explain logical operation in PIC18F Family.	03
	(b) Explain the Multiply and divide operations in PIC18F Family with example.	04
	(c) Describe the bit pattern of IPR1 & PIE1 registers of PIC18F452	07
Q.5	(a) Explain any three instruction of PIC18F Family instruction Set in brief.	03
	(b) List out the timers of PIC18F microcontroller and explain any one in brief.	04
	(c) Write an Assembly language program to copy a block of 20 bytes of data starting at address 20H to 80H of PIC18F452 microcontroller.	07
	OR	
Q.5	(a) Write an embedded C program in 8051 to send value of 1, 2, 4, 5, 6 to port P2.	03
	(b) Write a short note on PIC18F Interrupts.	04
	(c) Write an 8051 C program to toggle all the bits of P0 and P2 continuously with a 200ms delay	07

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