M.E. / M.Tech. - DEGREE EXAMINATIONS, NOV / DEC 2023
First Semester
M.E. - Embedded Systems Technologies
20PESPC102 - MICROCONTROLLER BASED SYSTEM DESIGN
(Regulations 2020)

Duration: 3 Hours   Max. Marks: 100

PART - A (10 × 2 = 20 Marks)
Answer ALL Questions

		Marks, K-Level, CO
1.	Which is the highest priority interrupt of 8051?	*2,K1,CO1*
2.	List out the instructions set available in 8051.	*2,K1,CO1*
3.	Explain the instruction MUL available in 8051.	*2,K1,CO2*
4.	List any four single bit instructions used in 8051.	*2,K1,CO2*
5.	Mention the features of serial port in mode 0.	*2,K2,CO3*
6.	State how baud rate is calculated for serial data transfer in mode1.	*2,K1,CO3*
7.	Show the instruction pipe line & mention its significance.	*2,K1,CO4*
8.	Name the addressing modes of PIC micro controller.	*2,K1,CO4*
9.	What are interrupts available in PIC micro controller?	*2,K1,CO5*
10.	What are the timer modes in PIC?	*2,K1,CO5*

PART - B (5 × 13 = 65 Marks)
Answer ALL Questions

11.	a)	Explain the various addressing modes of 8051 with suitable examples.	*13,K2,CO1*
		OR	
	b)	Draw the Pin Diagram of 8051 and explain the function of various signals.	*13,K2,CO1*
12.	a)	Write an ALP to sort the given numbers in ascending order using 8051.	*13,K3,CO2*
		OR	
	b)	Write an ALP to find smallest of the given numbers using 8051.	*13,K3,CO2*
13.	a)	Explain the mode2 operation in serial data COM of 8051 with an assembly language program.	*13,K2,CO3*
		OR	
	b)	Explain in detail about the two different RTOS for 8051.	*13,K2,CO3*

K1 – Remember; K2 – Understand; K3 – Apply; K4 – Analyze; K5 – Evaluate; K6 – Create   **12331**

14. a) With a neat diagram explain in detail about the architecture of PIC micro controller.   *13,K2,CO4*

OR

b) Discuss in detail about the memory organization of PIC microcontroller.   *13,K2,CO4*

15. a) Explain how temperature sensor is interfaced with PIC18 series microcontroller.   *13,K2,CO5*

OR

b) (i) Explain the UART in PIC micro controller.   *7,K2,CO5*

(ii) Outline ADC interfacing in PIC micro controller.   *6,K2,CO5*

PART - C (1 × 15 = 15 Marks)

16. a) Develop a program for keyboard interfacing with 8051.   *15,K3,CO6*

OR

b) Write a program for micro controller control signal for converter.   *15,K3,CO6*