Reg. No.         Question Paper Code       21331         Prist Semester       Semester         M.E Embedded System Technologies       20PESPC102 - MICROCONTROLLER BASED SYSTEM DESIGN (Regulations 2020)         Duration: 3 Hours       Max. Marks: 100         PART - A (10 × 2 = 20 Marks)       Marks         Answer ALL Questions       Marks         1.       List the addressing modes supported by 8051.       24/1/2         2.       Illustrate bit manipulation instructions with two examples.       24/1/2         3.       State the function of DPTR register.       24/1/2         4.       Signify the job of the TMOD register.       2.4/1/2         5.       What is meant by PCLATH? Give its use.       2.4/2/2         6.       How to select the memory bank in the PIC microcontroller?       2.4/2/2         7.       Give the purpose of busy flag in LCD.       2.4/2/2         8.       Brief about the 12C bus.       2.4/2/2         9.       Mention the importance of RTOs for real time applications?       2.4/1/2         10.       Write a C18 program to toggle all the bits of Port A continuously.       2.4/2/2         9.       Mention the Interrupt structure with the associated registers in 8051 <sup>1/3</sup> . K2.CO         11.       a)       Explain the Interrupt structure with the a							
Arren ME. / M.Tech DEGREE EXAMINATIONS, NOV/DEC 2022         First Semester         M.E Embedded System Technologies         20PESPC102 - MICROCONTROLLER BASED SYSTEM DESIGN (Regulations 2020)         Duration: 3 Hours       Max. Marks: 100         PART - A (10 × 2 = 20 Marks) Answer ALL Questions       Marks         1.       List the addressing modes supported by 8051.       2.K1.CC         2.       Illustrate bit manipulation instructions with two examples.       2.K1.CC         3.       State the function of DPTR register.       2.K1.CC         4.       Signify the job of the TMOD register.       2.K1.CC         5.       What is meant by PCLATH? Give its use.       2.K2.CC         6.       How to select the memory bank in the PIC microcontroller?       2.K2.CC         7.       Give the purpose of busy flag in LCD.       2.K2.CC         8.       Brief about the I2C bus.       2.K2.CC         9.       Mention the importance of RTOs for real time applications?       2.K1.CC         9.       Mention the interrupt structure with the associated registers in 8051 13.K2.CC         9.       Mention the Interrupt structure with the associated registers in 8051 13.K2.CC         9.       Mint he Interrupt structure with the associated registers in 8051 13.K2.CC         9.       Mint he Interrupt structure with th							
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b) With neat sketch explain the architecture/ functional block diagram of 13, K1, CC	01						
	77						
12. a) Explain 8051 serial port programming with examples. 13,K2,CO OR	2						
b) Explain the interfacing of thermometer with 8051 microcontroller. 13,K2,CO	2						
	1						
13. a) Explain how to set Timer1 and Timer 2 in PIC. 13,K2,CO OR							
b) Briefly explain about flash memory in PIC with necessary diagram. 13,K2,CO	4						
K1 – Remember; K2 – Understand; K3 – Apply; K4 – Analyze; K5 – Evaluate; K6 – Create <b>21331</b> 1							

A.

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14.	a)	Draw and explain the architecture of on chip ADC of PIC micro 13,K3,CO5
		controller in detail and write suitable assembly language program for
		configuring the ADC.

## OR

b)	(i) Explain the UART in PIC micro controller.	7,K2,CO5
	(ii) Write short notes on CCP modules.	6,K2,CO5

15. a) Draw and discuss a scheme for micro controller based multi channel 13,K2,CO6 data acquisition system.

ORb) Explain the PWM pulse generation using micro controller.

13,K3,CO6

## **PART - C** $(1 \times 15 = 15 \text{ Marks})$

16. a) (i)Write an assembly language program to add two numbers stored in 7,K3,CO3 location 07H & 08H.
(ii)Write a program in PIC micro controller to multiply 'N' byte 8,K3,CO3 numbers.

OR

b) Justify the statement — Once the watchdog timer is enabled (disable), 15,K3,CO3 it is not possible to make it off(on).

K1 – Remember; K2 – Understand; K3 – Apply; K4 – Analyze; K5 – Evaluate; K6 – Create 21331 2