B.E.(with Credits)-Regular-Semester 2012 - Instrumentation Engineering Sem VI

IN604 - Microcontroller and its Applications

P. Pages : 2 **GUG/W/16/5390**

Time : Three Hours * 3 5 5 9 * Max. Marks : 80

Notes : 1. Same answer book must be used for each question.
2. All questions carry marks as indicated.
3. Due credit will be given to neatness and adequate dimensions.
4. Assume suitable data wherever necessary.
5. Illustrate your answers wherever necessary with the help of neat sketches.

1. a) Compare microcontroller & microprocessor. **5**

b) Draw the block diagram of 8051 μc and describe it. **8**

c) What is special function register? **3**

OR

2. a) Explain PSW of 8051 μc also draw register bank. **8**

b) Explain I/O ports of 8051. Also mention its alternate functions. **8**

3. a) Classify the instruction set in 8051 μc and explain the functions of following instructions. **8**
i) ADDC
ii) DA
iii) RRCA

b) Write an 8051 'C' program to send Hex value for ASCII characters of 0,1,2,3,4,5,A,B,C,D to port P_1. **8**

OR

4. a) Write a program to add two 16-bit numbers, the numbers are FC45 H and 02ECH, and store the result in RAM memory locations starting at 40 H. **8**

b) Explain the following instructions:- **8**
i) DJNZ ii) DA
iii) SWAP iv) CJNE

5. a) Draw format of T_{CON} register. Explain different bits of it. **8**

b) Program timer '0' to generate triangular wave of 0.5 Hz. Assume that XTAL = 20 MHz. **8**

OR

6. a) Explain interrupts in 8051 μc. What is interrupt vector table and ISR. **8**

b) Program timer 1 to generate a square wave of 10 KHz. Assume XTAL = 20 MHz. **8**

7.	a)	Draw the interfacing diagram of ADC 0848 and temperature sensor (LM 35) with 8051 μc.	**8**
	b)	What special feature does the bit set/reset of 8255 allow? What is the function of data pins D_0- D_7 in the 8255?	**8**

OR

8.	a)	Draw & explain keyboard interfacing with 8051 μc.	**8**
	b)	Interface DAC with 8051 μc and write a program to generate triangular wave using DAC.	**8**
9.	a)	Explain any four arithmetic & logical instruction of PIC controller with example.	**8**
	b)	Write short note on I2C protocol.	**8**

OR

10.	a)	Explain interrupt structure of PIC 18.	**6**
	b)	Write short note on PIC 18 Timer.	**5**
	c)	Draw PIC architecture.	**5**

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