B.E.(with Credits)-Regular-Semester 2012 - Electronics Engineering Sem VIII

EN804 - Embedded Systems

P. Pages : 1 **GUG/W/16/7085**

Time : Three Hours * 4 8 5 7 * Max. Marks : 80

Notes : 1. All questions carry equal marks.
2. Assume suitable data wherever necessary.
3. Illustrate your answers wherever necessary with the help of neat sketches.

1.	a)	Explain different software tools used in the design of an embedded system.	**8**
	b)	Write short notes on embedded system an chip SOC	**8**
		OR	
2.	a)	Write short notes on design metrics.	**8**
	b)	Write short notes on embedded hardware units and devices in system.	**8**
3.	a)	Write AVR ALP for computing the equation $K = 3A - AB - B^2$. Assume all variables are 8 bit memory location.	**8**
	b)	Draw and explain different registers of AVR microcontroller;	**8**
		OR	
4.	a)	Draw status flag register of AVR microcontroller and explain the difference between sign and negative flags.	**8**
	b)	Explain the index register of AVR with suitable example of instruction.	**8**
5.	a)	Explain the steps in programming ADC of AVR using polling method.	**8**
	b)	Explain the structure of I/O port of AVR microcontroller with reference to DDRx, PORTx, PINx register.	**8**
		OR	
6.	a)	Write AVR ALP to read data at the pins of PORT C add 10 to it and send to PORT B.	**8**
	b)	Describe important features of ADC of AVR microcontroller.	**8**
7.	a)	Write AVR ALP to generate a wave with frequency of 31259 Hz and duty cycle of 75%. Assume XTAL = 8 MHz, use non inverted PWM mode.	**8**
	b)	Explain Phase correct PWM mode of AVR Timer.	**8**
		OR	
8.	a)	Draw basic Timer o block diagram and explain its operation in brief.	**8**
	b)	Write AVR ALP to generate a square wave with a period of 12.5 µs on pin PORT B 3.	**8**
9.	a)	List three ways in which an RTOS handles the ISRS in a multi tasking environment. What is the advantage of two or three level handling of the interrupts.	**8**
	b)	Explain in brief RTOS. What is meant by scalable RTOS?	**8**
		OR	
10.	a)	Compare any two scheduling strategies for the real - time scheduling.	**8**
	b)	List the advantages and disadvantages of fixed and dynamic block allocaturis by the OS.	**8**

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