T.E. (EXTC) (Sem-V) (CBSGS) (R-2012)

Date-19/11/19

Paper / Subject Code: 30602 / MICROCONTROLLERS AND APPLICATIONS

[Time: 3 Hours] **[Marks: 80]**

Please check whether you have got the right question paper.

N.B:
1. Question no. 1 is compulsory.
2. Attempt any Three questions from remaining
3. Assume suitable data if required and mention it in answer sheet

Q.1	a)	Explain SCON Register of 8051 Microcontroller	**4**
	b)	Explain TxD, EA, ALE and PSEN pins of 8051 Microcontroller	**4**
	c)	List and Explain design metrics of Embedded Systems	**4**
	d)	Write short notes on CPSR of ARM7	**4**
	e)	Explain concept of Cortex-A, the Cortex-R and the Cortex-M	**4**
Q.2	a)	Explain Internal RAM Organization of 8051 Microcontroller	**10**

	b)	Explain following instructions of ARM7
		ADD r0, r1, r1, LSL # 1
		ORR r0, r1, r2
		LDR r0, [r1, #2]
		AND r1, r1, #3
		CMP r0,r1,LSR #3
			10

Q.3	a)	Interface DAC0808 with 8051 microcontroller. Write Assembly language Program to generate triangular waveform	**10**
	b)	Write a program for 8051 microcontroller to generate rectangular waveform of 1kHz and 70% duty cycle at pin P1.1. Assume 8051 is operating at frequency 12MHz.	**10**
Q.4	a)	Draw and Explain dataflow model cf ARM7	**10**
	b)	Explain Addressing modes of ARM7 Processor with example in each.	**10**
Q.5	a)	Explain the Memory Interfacing of 8051 with 16K*8 Data RAM and 16K* 8Data ROM	**10**
	b)	Discuss Digital camera as an Embedded System	**10**
Q.6		Write short notes on (**Any Two**)	
	1)	8051 Addressing modes with example	**10**
	2)	Interrupts in 8051	**10**
	3)	8051 Timer operating modes	**10**
