T.E. Sem-V (CBSGS) Electronics – Mc and Appl's.
Microcontrollers and its Application

Q. P. Code : 591300

3/12/16

(3 Hours) **[Marks : 80]**

N.B. (1) Question **No.1** is compulsory.
(2) Solve **any three** questions from the remaining five questions.
(3) All questions carry equal marks.

Q.1	(a)	Describe the SCON and SBUF - SFR's in 8051.	**05**
	(b)	Explain the function of the barrel shifter in the ARM7 core.	**05**
	(c)	Draw and explain the CPSR register of the ARM processor.	**05**
	(d)	Explain the concept of register banks in 8051.	**05**
Q.2	(a)	Explain the structure of the Input/Output ports of the 8051 with neat diagram.	**10**
	(b)	Explain in detail the operating modes of the ARM7.	**10**
Q.3	(a)	Write an assembly language program to transfer a block of data in memory using load and store instructions of the ARM7.	**10**
	(b)	Write a detailed note on the Interrupt structure of the 8051 and explain the related SFRs.	**10**
Q.4	(a)	Write an assembly language program for interfacing 'YES' serially at 9600 band continuously using the 8051.	**10**
	(b)	Explain the interfacing of 8051 to external memory with the help of suitable diagram. (Make necessary assumptions)	**10**
Q.5	(a)	"ARM-Thumb interworking improves the code density". Justify with a neat example.	**10**
	(b)	Write a program (with and without timer) to generate a square wave on pin P1.Z. Highlight the difference in the two methods.	**10**
Q.6		Write short note on (**any three**). a) DC motor interfacing with 8051. b) ARM7 Architecture. c) Power saving modes of the 8051. d) Thumb state of the ARM7.	**20**

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