Q. P. Code : 591302

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

N. B. : (1) Question No. 1 is compulsory.
(2) Attempt any three questions from remaining questions.
(3) All questions carry equal marks.

Q.1	(a)	Explain the ARM7 pipeline and justify how hazards are reduced in the pipeline of the ARM7.	**05**
	(b)	Explain the concept of register banks in 8051.	**05**
	(c)	Explain the power saving modes of the 8051.	**05**
	(d)	Explain the function of the barrel shifter in the ARM7 core.	**05**
Q.2	(a)	Write an assembly language program for interfacing an alphanumeric LCD to the 8051. Draw the interfacing diagram.	**10**
	(b)	Explain the architecture of the ARM7 core with a neat diagram.	**10**
Q.3	(a)	Write an assembly language program to transfer a block of data in memory using load and store instructions ofthe ARM7.	**10**
	(b)	Explain the structure of the Input /Output ports of the 8051 with neat diagrams.	**10**
Q.4	(a)	Explain the functions of the bits of the CPSR in the ARM7 and differentiate between the CPSR and the SPSR.	**10**
	(b)	Interface 32K of RAM (using 16K devices) and 32K of ROM (using 16K devices) to the 8051. Show the memory map, clock circuitry and other necessary signals.	**10**
Q.5	(a)	Write a program (with and without timer) to generate a square wave on pin Pl.2. Highlight the difference in the two methods.	**10**
	(b)	"ARM-Thumb interworking improves the code density". Justify with a neat example.	**10**
Q.6	(a)	Write a detailed note on the Interrupt structure of the 8051 and explain the related SFRs.	**10**
	(b)	Explain the following instructions: (i) MOVC A,@A+DPTR (ii) DJNZ R2,Back (iii) MLA R7,R8,R9,R3 (iv) BLE loop.	**20**

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