Time: 3 Hours   **Marks: 80**

- Question no. 1 is compulsory
- Attempt any Three questions from remaining
- Assume suitable data wherever necessary

Q1	a)	Explain Program Status word Register of 8051 Microcontroller	[5]
	b)	Explain any five Addressing modes of 8051 with one example in each	[5]
	c)	Write short notes on CPSR of ARM7	[5]
	d)	Differentiate between ARM and THUMB state.	[5]

Q2	a)	Explain Internal RAM Organization of 8051 Microcontroller	[10]
	b)	Write a program for 8051 microcontroller to generate square waveform of 2kHz & 50% duty cycle at pin P2.1. Assume 8051 is operating at frequency 11.059MHz. Use hardware timer 0 in mode 1 to generate delay.	[10]

	Timer1				Timer0			
	GATE	C/T̄	M1	M0	GATE	C/T̄	M1	M0

TMOD Register
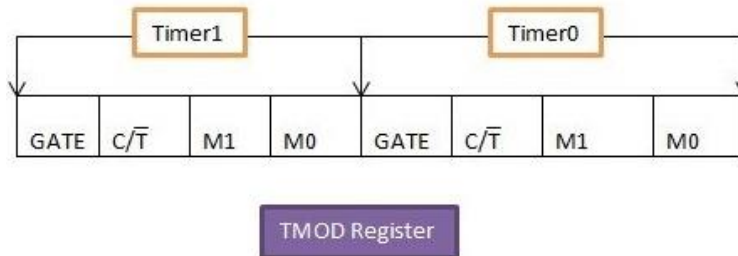
Q3	a)	Explain Interrupts in 8051 along with Interrupt vector table.	[10]
	b)	Explain LCD interfacing with 8051 and write assembly language program to display message "HI" on it. Draw the connection diagram of 8051 with LCD.	[10]

Q 4	a)	Explain in detail 8051 Timer operating modes	[10]
	b)	Draw & Explain dataflow model of ARM7	[10]

Q 5	a)	Explain Operating modes of ARM7 Processor	[10]
	b)	Explain Addressing modes of ARM7 Processor with examples	[10]

Q 6	a)	Explain following instructions of ARM7 processor with example	[10]

1. ADD r0, r1, r1, LSL #1
2. STR r0, [r1]
3. LSR r0,#2
4. LDR r0,[r1,#2]
5. CMP r0,r1,LSR #3

	b)	Write embedded C language program to blink LED at P0.16 with certain delay. Use Software approach to generate delay.	[10]

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