VIT

Vellore Institute of Technology

Continuous Assessment Test 2 - March 2023

Programme	B.Tech. (CSE) & B.Tech. (CSE with Specializations)	Semester	WS 2022-23
Course	Microprocessors and Microcontrollers	Code	BECE204L
		Class Nbr	CH2022350031 15
Faculty	Dr. Hariharan I	Slot	F1 + TF1
Time	90 Minutes	Max Marks	50

Answer ALL the questions

| Q.No.	Sub. Sec.	Questions	Marks
1		Write an 8-bit addition program in 8051 assembly language where the result of the addition must set Carry, Parity, Auxiliary Carry and Overflow Flags as 1.	5
2		Find the value of register R1 "**XX**" in the given 8051 assembly language program such that it creates a delay of 5 seconds. Assume that the crystal frequency is 33 MHz.	5

Instruction	No. of Machine Cycle
MOV R1, #**XX**	1
Loop3: MOV R2, #255	1
Loop2: MOV R3, #255	1
Loop1: DJNZ R3, Loop1	2
DJNZ R2, Loop2	2
DJNZ R1, Loop3	2
RET	2

3. The three-digit password is being sent to you over serial communication at a 4800 baud rate. Verify the received password against the one that is actually stored in RAM from location 20H. The GREEN LED connected to Port Pin P2.7 will light up if the received password matches the actual password; else, the RED LED connected to Port Pin P2.0 will light up. For the aforementioned case, write an 8051 assembly language program. Assume that the crystal frequency is 11.0592 MHz.   **10**

Note 1: The actual password is **VIT**.

Note 2: The ASCII code for A to Z starts from 41H (A) to 5AH (Z) and for lower case it's start from 61H (a) to 7AH (z).

4. Write an 8051 assembly language program using timer to generate the waveform at Port Pin P1.3 as shown in Figure 1 continuously in which the values of time intervals A and B are 0.5 ms and 0.1 ms, respectively. Assume the crystal frequency is 12 MHz.   **10**
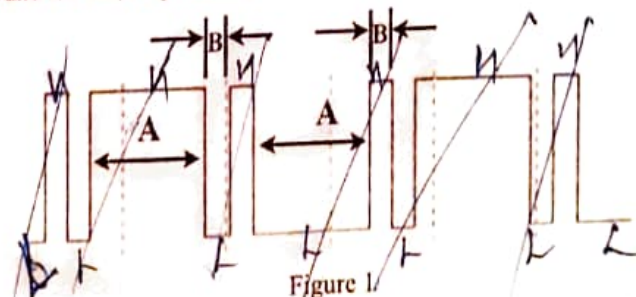
Figure 1.

Write an assembly language program to interface an 8051 with LCD to display the message, as shown in Figure 2. Assume the crystal frequency is 11.0592 MHz. The data pins of the LCD are connected to Port P1. The RS, R/W and E pins of the LCD are connected to Port Pins P0.0, P0.1 and P0.2, respectively.   10
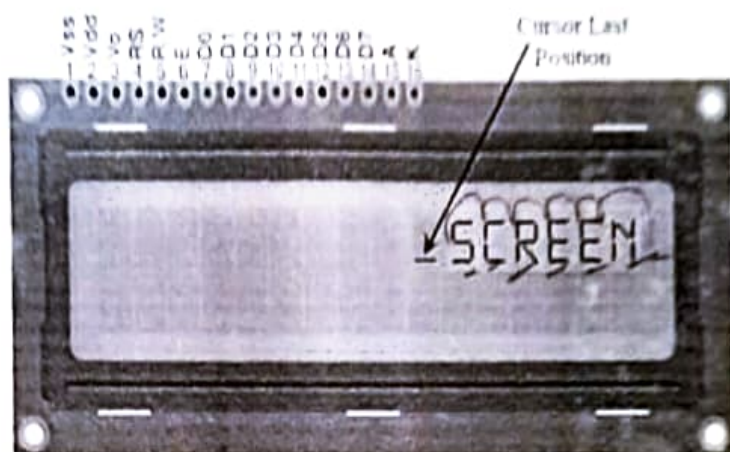

Figure 2

6.   Fill in Table 1 by specifying the internal RAM locations of registers/memory after the   10
execution of each instruction of the following code.

Table 1

Instruction	RAM Location of Register	Value
MOV A, #27H		
MOV R2, #0F2H		
SUBB A, R2		
ANL A, R2		
MOV 22, A		
SETB 69		
MOV 17, #45H		
MOV PSW, #10H		
MOV R4, 22		
MOV R5, #23H		

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