Reg. No.:

Name :

VIT

Vellore Institute of Technology

Continuous Assessment Test 2 – March 2023

Programme	B.Tech. (CSE) & B.Tech. CSE with Specialization)	Semester	WS 2022-23
Course	Microprocessors and Microcontrollers	Code	BECE2041L
		Class Nbr	CH2022235002461
Faculty	Dr. Ravi Tiwari	Slot	F2 + TF2
Time	90 Minutes	Max. Marks	50

Answer ALL the questions

Q.No.	Sub	Questions	Mark
1.		Examine the content of Program Status Word (PSW) register of 8051 as shown below and illustrate the significance of each flag bit.	5

1	1	0	1	0	0	0	1

2. Analyze the following code and perform the following:

(i) What will be the value stored at 50H after the execution of entire program? 7
(ii) Mention the values get stored in each register and in every iteration. 8

Assume 8051 RAM memory locations 41H, 42H, 43H, 44H and 45H are stored with values 33H, 11H, 44H, 11H and 22H, respectively.

```
        MOV R0, #41H
        CLR C
        MOV R2, #05H
        MOV A, @R0
        MOV B, A
L2:     INC R0
        MOV A, @R0
        CJNE A, B, L1
        SJMP L3
L1:     JNC L3
        MOV B, A
L3:     DJNZ R2, L2
        MOV 50H, B
        END
```

3. Consider an 8051 microcontroller system which takes numeric inputs between 1 and 26 from the user through the Port P2. The numeric value "1" is mapped to the character "A", "2" is mapped to "B" and likewise "26" is mapped to "Z". Process the received numeric input in such a way that you transfer the mapped character of it via serial communication with a baud rate of 9600. Assume the crystal frequency of the 8051 microcontroller is 25.8048 MHz. Write an 8051 assembly language program to implement the same. [Note: The ASCII code for A to Z starts from 41H (A) to 5AH (Z)] 1

4. Assuming that XTAL = 33 MHz,

(a) Find the frequency of the square wave generated on Port Pin P1.5 in the following program.

(iv) Modify the program to obtain the smallest frequency achievable, and the TH1 value to do that. 2.5

```
        MOV TMOD, #20H
        MOV TH1,#0E5H
L2:     SETB TR1
L1:     JNB TF1, L1
        CPL P1.5
        CLR TF1
        CLR TR1
        SJMP L2
```

All VIT Chennai buses are equipped with standard GPS method to provide necessary information for the benefit of their users. The output of this GPS is interfaced with the 8051 microcontroller through Port P0. Write an 8051 assembly language program to display "**GET DOWN**" on the LCD, if the GPS coordinate is 0AH that is received by Port P0. 10

Hint: Use DPTR for accessing the characters to be displayed.

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