Reg. No.:

Name :

VIT

Vellore Institute of Technology

(Deemed to be University under section 3 of UGC Act, 1956)

Continuous Assessment Test II – October 2023

Programme	:	**B.Tech (BCE/BPS/BAI/BRS)**	Semester	:	**FS 2023-24**
Course	:	**Microprocessors and Microcontrollers**	Code	:	**BECE204L**
			Slot	:	**E1+TE1**
Faculty	:	**REVATHI S,**	ClassNbr:	:	**CH2023240101166**
		SUBHASHINI N,			**CH2023240101169**
		MUTHULAKSHMI S,			**CH2023240101178**
		MANOJ KUMAR R,			**CH2023240100941**
		BALA MURUGAN M S,			**CH2023240100943**
		SOURABH PAUL,			**CH2023240100947**
		S SELVENDRAN,			**CH2023240100951**
		LAKSHMI PRIYA,			**CH2023240100954**
		AUGUSTA SOPHY BEULET P,			**CH2023240100959**
		SIVASUBRAMANIAN A			**CH2023240100963**
Time	:	**90 Minutes**	Max. Marks	:	**50**

Answer ALL the questions

Note: All the programs should have the comments which describes the logic of the program

Q.No.	Questions	Marks
1.	Find the value of register R1 (**XX**) in the given 8051 ASM 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

2.	Write an assembly language program in 8051 using timers to generate the following waveform as shown in Figure 1. Assume crystal frequency as 12 MHz	**10**

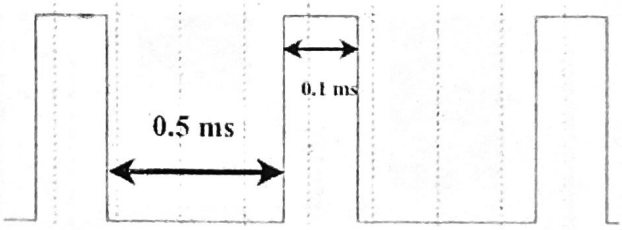

Figure 1: Timer Waveform

3.	Write an 8051 ASM program to generate the waveform as shown in Figure 2 using DAC.	**10**

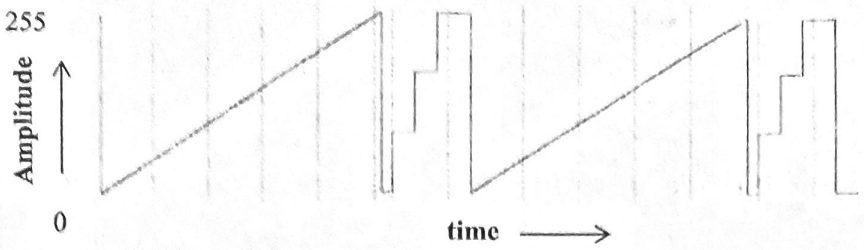

Figure 2: DAC Waveform

4. Assume that an array has 8 numbers stored starting from the location 40H as given below. A={50H,95H, 60H, 75H, F0H, 25H, 92H,98H}. Write an 8051 assembly language program to find the sum of all the numbers which are greater than 80H and store the result in the memory location 50H and carry (if any) in 51H. **10**

5. Design an 8051 microcontroller based system for VIT counselling hall. The system transmits the message 'WELCOME TO VIT' serially continuously with a baudrate of 9600 on a monitor. Assume the crystal frequency as 11.0592MHz. Also, the entry gate of the counselling hall is connected with one digital InfraRed (IR) sensor for monitoring the candidates entering the hall (connected to INT0 pin of 8051). Whenever there is a candidate entering the counselling hall, IR sensor generates an interrupt signal to display the message "HAVE A GREAT DAY" on LCD which is interfaced with 8051. Write an 8051 microcontroller assembly language program to configure the above system to perform serial transmission and the necessary LCD display. **15**

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