Total number of printed pages:

Programme (UG)/4th Semester/UECE 403

2024

Microcontroller

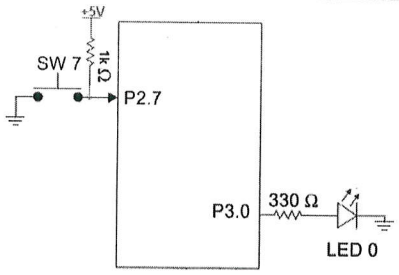
Full Marks: 100

Time: Three hours

The figures in the margin indicate full marks for the questions.

*Answer **any five** questions.*

1.	a)	Write a program to transfer character 'Y' serially at 9600baud continuously through serial port and after this send a letter 'N' through parallel port P1 which is connected to a display device. [Assembly and C]	[5+5]
	b)	Assuming f_Crystal=24MHz, write an Assembly & C program to generate a square wave of frequency 1kHz on bit port P1.2. Use mode 2, Timer 0	[5+5]
2.	a)	Write an assembly program to create square wave of with T_ON=2ms and T_OFF=4ms at bit port P1.3 with Timers, assume f_Crystal=11.059MHz.	10
	b)	Write an assembly code to read port P0 and send its value on port P2 five hundred times.	4
	c)	Write the assembly instructions for the data transfer from the 3 consecutive external memory locations starting at 0305H onwards to the internal RAM locations starting from 21h onwards	6
3.	a)	Write a subroutine for addition of two 8 bit numbers save the content of ACC and status flags before addition and retrieve after addition	6
	b)	An LUT is shown below. Write an assembly program to save the contents of the LUT to the RAM starting from address 20H. **MY_TABLE:** **Address** / **Data** 0250H / 'A' 0251H / 'B' 0252H / 'C' 0253H / 'D'	8
	c)	Write a C program to display a message "HELLO INDIA" at P1 one character at a time, continuously with some delay in between each display.	[6]

4.	a)	Draw the diagram for interfacing the 8051 MCU with an external ROM of size 1kBytes.	[6]
	b)	Write an assembly program to receive the serial bits serially from an DTE at 4800baud in mode 1 and display the same at P1 after receive.	[6]
	c)	 Write a program to check the status of the switch and do the following tasks: If SW7=0, Send letter 'N' to P1 and turn ON the LED else send letter 'Y' to P1 and turn the LED OFF.	[8]
5.	a)	Write a comparison between the SJMP, AJMP and LJMP	[6]
	b)	i) MOV A, #26H RR A RR A RR A RR A Find the value of A after each step.	[4]
		ii) Write instructions to increment contents of R5 until it becomes equal to contents of address 30H.	[6]
	c)	Explain the operation of timers in Mode 2	[4]
6.	a)	Explain the address demultiplexing used in PORT0 with proper diagram.	6
	b)	Write a short note on Program Status Word	6
	c)	Write an 8051 C program to get a byte of data from P0. If it is less than 100, send it to P1; otherwise, send it to P2.	8