CBCS SCHEME

USN | | | | | | | | | | |

BMT401

ACHARYA INSTITUTE OF TECHNOLOGY
MCA Library
Date .....
BANGALORE

Fourth Semester B.E./B.Tech. Degree Examination, June/July 2024
Microcontroller and Applications

Time: 3 hrs. Max. Marks: 100

Note: 1. Answer any FIVE full questions, choosing ONE full question from each module.
2. M : Marks , L: Bloom's level , C: Course outcomes.

		Module – 1	M	L	C
Q.1	a.	Describe the functions of the various pins of 8051 microcontroller and provide a labelled diagram.	10	L1	CO1
	b.	Discriminate between microprocessor and microcontroller with its block diagram.	10	L2	CO1
		OR			
Q.2	a.	Explain the operation of Porto and Port pin configurations of the 8051 microcontroller.	10	L1	CO1
	b.	Discriminate between Van-Neuman and Harvard architecture, RISC and CISC architecture.	10	L2	CO1
		Module – 2			
Q.3	a.	Explain the different addressing made of 8051. Give an example for each of them.	10	L3	CO1
	b.	Create an assembly level program to determine the number is odd or even in a array starting from 9400h. If it is even store it 30h onwards else store it in 40h onwards.	10	L3	CO1
		OR			
Q.4	a.	Discuss the following instructions with examples: (i) CJNE @R_P, #n, radd (ii) ANL c, b (iii) MOVX @DPTR, A (iv) ADDC A, @R_P (v) XRL add, #n	10	L3	CO1
	b.	Calculate the sum of 10 BCD numbers and store the result lower byte in R4 and higher byte R_5. Write an assembly level code for the same.	10	L3	CO1
		Module – 3			
Q.5	a.	Explain the steps involved in program Time in mode 1 with neat sketch.	10	L2	CO2
	b.	Write a program in C for an 8051 microcontroller to get a byte of data from P_0. If it is less than 100 wait ½ second sent it to P_1 ; Otherwise wait 1 second send it to P_2.	10	L3	CO2
		OR			
Q.6	a.	Explain the steps involved in program Timer in Auto reload mode with neat sketch.	10	L2	CO2
	b.	Write a program in C for an 8051 to toggle all the bits of port P_0 continuously. Use timer0 to generate delay of 1 sec between each toggle. Assume XTPL = 11.0592 MHz.	10	L3	CO2

		Module – 4			
Q.7	**a.**	Explain with the help of diagram, bit patterns of SCON and PCON register.	**10**	**L2**	**CO3**
	b.	Write an assembly level program to transfer the message "VTU Belagavi" serially at 9600 baud rate, 8 bit data and 1 stop bit.	**10**	**L3**	**CO3**
		OR			
Q.8	**a.**	Upon activation of an internet, explain the steps involved executing an Interrupt. Also explain each bits of IE and IP register.	**10**	**L2**	**CO3**
	b.	Write Assembly program that continuously get 8 bit data from P_0 and sends it to P_1 while simultaneously creating a square wave of 200 μs period on Pin P2.1. Use timer 0 to create square wave. Assume XTAL = 11.0592 MHz	**10**	**L3**	**CO3**
		Module – 5			
Q.9	**a.**	With a neat sketch, explain the stepper motor interfacing to 8051 microcontroller. Also write a 8051 C code to rotate it clockwise 180°.	**10**	**L3**	**CO4**
	b.	Explain with neat sketch interfacing DAC 0808 to 8051. Write a 8051 C code to generate triangular wave using DAC.	**10**	**L3**	**CO4**
		OR			
Q.10	**a.**	With schematic diagram, explain the interfacing LCD to 8051 microcontroller.	**10**	**L2**	**CO4**
	b.	Explain the operation of ADC 804 IC interfacing to 8051 microcontroller.	**10**	**L2**	**CO4**

* * * * *

VTU-21-08-2024 01:20:26pm
AY - AY - AY - AY - AY - AY - AY - AY
21-08-2024 01:31:50pm
AY - AY - AY - AY - AY - AY - AY - AY