CBCS SCHEME

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

BMT401

Fourth Semester B.E./B.Tech. Degree Supplementary Examination, June/July 2024

Microcontrollers 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.	Define Microcontroller and Write about the architecture of 8051 microcontroller with neat diagram.	12	L1	CO1
	b.	List the difference between microcontroller and microprocessor.	08	L1	CO1
		OR			
Q.2	a.	Show the pin diagram of 8051 microcontroller with suitable diagram and write about it.	10	L1	CO1
	b.	List the difference between i) RISC and CISC architecture ii) Harvard and Von-Neumann architecture	10	L1	CO1
		Module – 2			
Q.3	a.	With suitable example write about different addressing modes in 8051 microcontroller.	10	L2	CO2
	b.	Explain the operation of the following instructions: i) MUL AB ii) DIV AB iii) ANL iv) ORL v) CPL A	10	L2	CO2
		OR			
Q.4	a.	With suitable example write about rotate instructions and swap instruction.	10	L2	CO2
	b.	Explain the following : i) PUSH and POP opcode ii) Data exchange operation	10	L2	CO2
		Module – 3			
Q.5	a.	With suitable example write about different datatypes of 8051 C.	10	L3	CO2
	b.	With suitable diagram write about mode 1 programming in 8051 microcontroller and mode 2 programming in 8051 microcontroller.	10	L3	CO2
		OR			
Q.6	a.	Identify the factors affecting the accuracy of time delay and write about ways to create time delay in 8051C and also write about data serialization.	10	L3	CO2
	b.	Build 8051 C program to toggle bits of P1 port continuously with 250 ms.	10	L3	CO2
		Module – 4			
Q.7	a.	Identify the steps to program 8051 to transfer data serially and receive data serially.	10	L3	CO2
	b.	Build a program to transfer the message "Yes" serially at 9600 baud, 8 bit data and one stop bit continuously.	10	L3	CO2
		OR			
Q.8	a.	With suitable example write about interrupt and polling and also write how the interrupts in 8051 are classified.	10	L3	CO3
	b.	With the help of TCON write about the concept of edge triggered and level triggered interrupt.	10	L3	CO3
		Module – 5			
Q.9	a.	Explain stepper motor interfacing to 8051 microcontroller.	10	L2	CO3
	b.	Explain signal conditioning and its role in data acquisition. Write an ALP to generate a triangular waveform.	10	L2	CO3
		OR			
Q.10	a.	Explain DC motor interfacing of 8051 microcontroller.	10	L2	CO4
	b.	Explain how to interface DAC to 8051 microcontroller.	10	L2	CO4

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