

Fourth Semester B.E./B.Tech. Degree Examination, June/July 2025

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.	Explain the architecture of 8051 microcontroller.	10	L2	CO1
	b.	Explain the difference between Von-neuman and Harvard architecture.	10	L2	CO1
OR					
Q.2	a.	Explain the difference between : (i) RISC and CISC architecture (ii) Microcontroller and microprocessor	10	L2	CO1
	b.	Explain program status word in detail.	10	L2	CO1
Module – 2					
Q.3	a.	Explain all the addressing modes of 8051.	10	L2	CO2
	b.	Explain PUSH and POP instruction.	10	L2	CO2
OR					
Q.4	a.	Explain logical and arithmetic instructions of 8051.	10	L2	CO2
	b.	Explain Rotate instructions in detail with example.	10	L2	CO2
Module – 3					
Q.5	a.	Explain TMOD and TCON register.	10	L2	CO3
	b.	Explain C data types for 8051.	10	L2	CO3
OR					
Q.6	a.	Write a C program to toggle all the bits of P ₀ , P ₁ and P ₂ continuously with a delay of 250 ms.	10	L2	CO3
	b.	Assume XTAL = 11.0592 MHz. Write the program for timer 0 to create pulse width of 5 msec on port P _{2.3} .	10	L2	CO3
Module – 4					
Q.7	a.	With a neat sketch explain handshaking signal of RS232.	10	L2	CO4
	b.	Write an ALP to transmit data "Hello" serially at 9600 baud rate, use 8 bit data and 1 stop bit. XTAL = 11.0592 MHz, Timer = 1.	10	L2	CO4
OR					
Q.8	a.	What is data serilization? Write a C program to send out the value 44H serially one but at a time. LSB has to go out first.	10	L2	CO4
	b.	Explain 8051 interrupts in detail.	10	L2	CO4
Module – 5					
Q.9	a.	Explain how to interface LED to 8051 microcontroller.	10	L2	CO5
	b.	Explain how to interface stepper motor with 8051 microcontroller.	10	L2	CO5
OR					
Q.10	a.	Explain how to interface ADC to 8051 microcontroller.	10	L2	CO5
	b.	Write a C program to generate sine wave and square wave.	10	L2	CO5