

CBCS SCHEME

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BEC405A

Fourth Semester B.E./B.Tech. Degree Examination, June/July 2026

Microcontrollers

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.	Mention the differences between Microprocessor and Microcontroller.	05	L1	CO1
	b.	Differentiate between CISC and RISC.	05	L1	CO1
	c.	With a neat diagram explain the 8051 architecture.	10	L2	CO1
OR					
Q.2	a.	With a neat diagram explain the 8051 RAM Structure.	10	L2	CO1
	b.	After Reset a 8051 Microcontroller what is the status of SFRs and GPRs.	05	L1	CO1
	c.	Explain the each bit of PSW register.	05	L1	CO1
Module – 2					
Q.3	a.	Define Addressing Mode. Explain the five types of 8051 addressing modes and provide example each.	12	L1	CO2
	b.	Write an ALP transfer 10 number of block of data from 30H to 40H.	08	L2	CO2
OR					
Q.4	a.	Explain the following instructions : (i) MOVX (ii) SWAP (iii) XCHD (iv) JBC (v) RETI	10	L2	CO2
	b.	Define Stack. Explain the operation of stack using stack pointer, PUSH and POP instructions.	10	L2	CO2
Module – 3					
Q.5	a.	Explain the following register : (i) TMOD (ii) TCON	10	L2	CO3
	b.	Illustrate an ALP to generate a square wave of frequency 1 KHz on P _{1.2} . Assume XTAL = 22 MHz.	10	L3	CO3

OR

Q.6	a.	With a neat diagram explain the timer mode programming Mode 0, Mode 1 and Mode 2.	12	L2	CO3
	b.	Describe a 8051 C program transfer "VTU" serially at 9600 bps 8 bit data 1 start bit 1 stop bit, do this continuously.	08	L3	CO3

Module – 4

Q.7	a.	Explain the IE and IP registers.	10	L2	CO4
	b.	Explain interrupt vector table of 8051 microcontroller.	05	L2	CO4
	c.	Explain the bit status of SCON register.	05	L2	CO4

OR

Q.8	a.	Write a program to generate two square wave : One of 10 KHz frequency on P _{2.1} and another of 20 KHz at the P _{2.3} . Assume XTAL = 11.0592 MHz. Use T ₀ and T ₁ interrupt.	10	L3	CO4
	b.	List the steps involved in executing an interrupt.	10	L2	CO4

Module – 5

Q.9	a.	With a neat diagram write an ALP to interface stepper motor to 8051 microcontroller.	10	L2	CO5
	b.	Explain the 8051 DC motor interfacing.	10	L2	CO5

OR

Q.10	a.	With a neat diagram write an ALP to interface LCD to 8051 microcontroller.	10	L2	CO5
	b.	Write an 8051 C program to generate square wave and triangular wave.	10	L2	CO5
