R22 Regulation *Subject code:4E6BC*

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

(Autonomous, Accredited by NAAC with 'A+' Grade)

B.Tech VI Semester Supplementary Examinations, November 2025

MICROPROCESSORS & MICROCONTROLLERS

(EEE)

Maximum Marks: 60 Date:11.11.2025 Duration: 3 hours

Note: **1.This question paper contains two parts A and B.**
2. Part A is compulsory which carries 10 marks. Answer all questions in Part A.
3. Part B consists of 5 Units. Answer any one full question from each unit.
4. Each question carries 10 marks and may have a, b, c, d as sub questions.

Part-A

All the following questions carry equal marks (10X1M=10 Marks)		Marks	CO	Bloom Tx
1.a)	Mention the importance for memory segmentation.	1M	CO1	BT1
b)	Write down the addressing mode of the instruction MOV AX, 55H [BX][SI].	1M	CO1	BT2
c)	Enlist the purpose of PSEN and EA pin in 8051.	1M	CO2	BT1
d)	Give the function of Program Status Word in microcontrollers.	1M	CO2	BT1
e)	What is key bouncing problem?	1M	CO3	BT1
f)	Mention the need of UART in a system.	1M	CO3	BT1
g)	What is load-store instructions?	1M	CO4	BT1
h)	Differentiate ARM and Thumb instruction set features.	1M	CO4	BT2
i)	Write the CORTEX –M3 features.	1M	CO5	BT1
j)	Why a Nested Vector Interrupt controller is necessary in the ARM cortex?	1M	CO5	BT2

Part-B

Answer All the following questions. (5X10M=50Marks)		Marks	CO	Bloom Tx
2	List the registers present in 8086 µP and discuss its functionality.	10M	CO1	BT3
	OR			
3	Explain the functionality of pins used in the following modes of 8086 µP. a. Minimum mode. b. Maximum mode	5M 5M	CO1	BT3
4	Explain the architecture of 8051 microcntroller.	10M	CO2	BT4
	OR			
5	a) What is the value of register A after each of the following instructions? MOV A, #26H RR A RR A RR A RR A SWAP A b) Write a delay program using 8051 instructions.	5M 5M	CO2	BT4

6	Write a short note on LCD Display. With the help of a neat diagram show the interfacing of LCD Display with 8051 μC and explain its operation.	10M	CO3	BT3
	OR			
7	a) Explain the operation of Inter-Integrated Circuit Bus in detail. b) Explain the serial peripheral interface in detail.	5M 5M	CO3	BT3
8	a) Describe the Interrupt, vector table and exception handler in ARM. b) Mention about the program status register instructions in ARM processor.	5M 5M	CO4	BT3
	OR			
9	a) With coding examples, explain the conditional execution of ARM instructions. b) Illustrate the decoding of simple Thumb ADD instruction into an equivalent ARM ADD instruction.	5M 5M	CO4	BT4
10	a) Explain with neat sketch the Architecture of Cortex-M3. b) What is pipelining in a processor? Explain about various stages of pipelining in ARM processors.	5M 5M	CO5	BT2
	OR			
11	Explain the Architecture of OMAP.	10M	CO5	BT3

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