R22 Regulation *Subject code: 4O8EB*

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

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

B.Tech VIII Semester Regular Examinations, May 2026

MICROPROCESSORS AND MICROCONTROLLERS

(CSE)

Maximum Marks: 60 Date:12.05.2026 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	BTL
1.a)	List the segment registers of 8086.	1	1	L1
b)	Define addressing modes.	1	1	L1
c)	What is the size of internal RAM in 8051?	1	2	L1
d)	What is timer interrupt in 8051?	1	2	L1
e)	What is the function of 8255 PPI?	1	3	L1
f)	Define UART communication.	1	3	L1
g)	What is CPSR in ARM?	1	4	L1
h)	Define pipeline.	1	4	L1
i)	What is Cortex processor?	1	5	L1
j)	What is the function of flag register?	1	5	L1

Part-B

Answer All the following questions. (5X10M=50Marks)		Marks	CO	BTL
2	a) Explain 8086 architecture with functional diagram and register organization.	5	1	L2
	b) Explain memory segmentation and calculate physical address.	5	1	L3
	OR			
3	a) Explain addressing modes of 8086 with examples.	5	1	L2
	b) Write an ALP to perform sorting of numbers.	5	1	L3
4	a) Explain architecture and memory organization of 8051.	5	2	L2
	b) Write a program for timer interrupt handling.	5	2	L3
	OR			
5	a) Explain I/O ports and addressing modes of 8051.	5	2	L2
	b) Write a program for serial communication interrupt.	5	2	L3
6	a) Explain interfacing of 8255 with 8086.	5	3	L2
	b) Explain ADC interfacing with 8051.	5	3	L3
	OR			
7	a) Explain serial communication standards (RS232, USB).	5	3	L2
	b) Compare SPI and I2C protocols.	5	3	L4

8	a) Explain ARM architecture and CPSR.	5	4	L2
	b) Explain data processing and branch instructions.	5	4	L3
	OR			
9	a) Explain ARM pipeline and interrupt handling.	5	4	L2
	b) Analyze conditional execution in ARM.	5	4	L2
10	a) Illustrate the working of Cortex processor in mobile devices.	5	5	L2
	b) Discuss applications of ARM processors.	5	5	L3
	OR			
11	a) Explain ARM applications in embedded systems.	5	5	L3
	b) List the advantages of advanced ARM processors.	5	5	L2

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