R22 Regulation *Subject code:4E5DB*

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

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

B.Tech V Semester Supplementary Examinations, April 2026

MICROPROCESSORSAND MICROCONTROLLERS
(ECE)

Maximum Marks: 60 Date:17.04.2026 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)	Name the segment registers in 8086.	1M	1	1
b)	What is the purpose of the Zero flag?	1M	1	1
c)	How many I/O ports are available in 8051?	1M	2	1
d)	How much external memory can be interfaced with 8051?	1M	2	1
e)	What voltage levels represent logic 0 and logic 1 in RS-232?	1M	3	1
f)	Which signal differentiates control word from data word in the 8255 PPI?	1M	3	1
g)	What are the two main types of interrupts in ARM?	1M	4	1
h)	How many stages are there in the basic ARM pipeline?	1M	4	1
i)	What is the main feature of OMAP processors?	1M	5	1
j)	What is the function of the DSP core in OMAP architecture?	1M	5	1

Part-B

Answer All the following questions. (5X10M=50Marks)		Marks	CO	BTL
2	The commercial available memory chips only byte size .To store 16 bit data two successive memory locations are required .The 8086 being 16 bit processor how the physical memory is organized ? Describe with neat sketches	10M	1	3
	OR			
3	Write the ALP to insert "DAILY" in the string "I WILL ATTEND CLASS" and finally it should appear as "I WILL ATTEND CLASS DAILY" in the destination.	10M	1	3
4	Draw and discuss the formats and bit definitions of the following SFR's in 8051 microcontrollers: i) IE ii) TMOD iii) TCON iv)SCON	10M	2	2
	OR			
5.	Give steps involved in serial communication, transmission and reception in 8051.	10M	2	3

6	Describe the functionality of I2C on board serial communication Interfaces with neat sketches.	10M	3	2
	OR			
7	Draw the interface circuit diagram of 4X4 Matrix Key board with 8051 microcontroller and Write an ALP to identify the key pressed.	10M	3	3
8	Explain the Current Program Status Register (CPSR) and its flag bits in detail.	10M	4	2
	OR			
9	What is an interrupt vector table? Explain its structure and purpose in ARM.	10M	4	2
10	Draw and explain the architecture of ARM Cortex-M processor with its main components.	10M	5	2
	OR			
11	Draw and explain the OMAP architecture block diagram.	10M	5	2