



*R20 Regulation*  
**TKR COLLEGE OF ENGINEERING AND TECHNOLOGY**  
(Autonomous, Accredited by NAAC with 'A' Grade)  
**B.Tech V Semester Supplementary Examinations, June/July 2023**

*Subject code: 3P5DD*

**MICROPROCESSORS AND MICROCONTROLLERS**  
(Electronics and Communication Engineering)

*Maximum Marks: 70*

*Date:01.07.2023 Duration: 3 hours*

**Part-A**

All the following questions carry equal marks

(10x2M=20 Marks)

- 1 Define Macro with its general form.
- 2 What are the different types of addressing modes of 8086 instruction set?
- 3 Find the count to be loaded in the timer register for using it in Mode 1 for a delay of 52 msec when the 8051 clock frequency is 12 MHz
- 4 Write instruction to select register bank 2 in 8051 microcontrollers.
- 5 What is mode 0 operation of 8255?
- 6 What is the difference between I2C Bus, SPI Bus?
- 7 What are the main features of ARM architecture?
- 8 Write the usage Thumb register.
- 9 What are the features of CORTEX Processor?
- 10 Draw the pin diagram of OMAP processor.

**Part-B**

Answer All the following questions.

(5X10M=50Marks)

- 11 A. Write an 8086 ALP to find the sum of numbers in the array of 10 elements. (7M)  
B. Write short note about assembler directives. (3M)  
OR
- 12 Write a short note about  
A. Loop, NOP and HLT instructions. (5M)  
B. Flag manipulation, logical and shift & rotate instructions. (5M)
- 13 A. Draw and explain port 0 and port 3 of 8051 microcontroller. (5M)  
B. Explain about the Addressing Modes of 8051 microcontroller with examples. (5M)  
OR
- 14 Assume that the INT1 pin is connected to a switch that is normally high. Whenever it goes low, it should turn on an LED. The LED is connected to P1.3 and is normally off. When it is turned on it should stay on for a fraction of a second. As long as the switch is pressed low, the LED should stay on. Implement the assembly program. (10M)
- 15 Explain how ADC and DAC interfacing is done with 8086 with an application. (10M)  
OR
- 16 What is serial communication? How is this achieved with 8051 using RS232 standards? (10M)

- 17 Explain about ARM instructions set. (10M)
- OR
- 18 Write a simple program using Branch & Load Instructions. (10M)
- 19     A. Design Architecture of CORTEX processor. (5M)  
       B. Brief about interrupts in CORTEX processor. (5M)
- OR
- 20 Explain about OMAP processor. (10M)