Code No.: R22EC501PC | R22 | H.T.No. | | | 8 | R | | | | | |

CMR ENGINEERING COLLEGE: : HYDERABAD
UGC AUTONOMOUS
III–B.TECH–I–Semester End Examinations (Regular) - December- 2025
MICROPROCESSORS & MICROCONTROLLERS
(ECE)

[Time: 3 Hours] **[Max. Marks: 60]**

Note: This question paper contains two parts A and B.
Part A is compulsory which carries 10 marks. Answer all questions in Part A.
Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks.

PART-A **(10 Marks)**

1. a)	List the operating modes of 8086 pins.	[1M]
b)	Describe macro in assembly language.	[1M]
c)	Differentiate between microprocessor and microcontroller.	[1M]
d)	Give the role of the Program Counter (PC) in 8051.	[1M]
e)	Illustrate the need for external memory interfacing in 8051.	[1M]
f)	What is UART?	[1M]
g)	List the features of ARM processor architecture.	[1M]
h)	What is the function of the LDR and STR instructions?	[1M]
i)	Name the different Cortex series processors.	[1M]
j)	Mention the features of OMAP architecture.	[1M]

PART-B **(50 Marks)**

2.	Draw and explain the functional block diagram of 8086 microprocessor.	[10M]
	OR	
3.	Describe in detail the addressing modes of 8086 with examples.	[10M]
4.	Describe the memory organization of 8051 microcontroller in detail.	[10M]
	OR	
5.a)	Explain the role of timer interrupts in real-time control systems.	[6M]
b)	Write a program to create 1ms time delay using Timer 0 of an 8051.	[4M]
6.a)	Illustrate the interfacing of LCD with 8051 microcontroller.	[6M]
b)	Write an 8051 assembly language program to display a given message on an LCD.	[4M]
	OR	
7.	Describe the I²C bus protocol and explain how it is used for onboard communication.	[10M]
8.	Describe the function and format of the ARM registers and CPSR (Current Program Status Register).	[10M]
	OR	
9.a)	Illustrate the data processing instructions of an ARM with examples.	[5M]
b)	Describe branch and branch-with-link instructions in ARM with examples.	[5M]
10.a)	Describe the classification of Cortex processors.	[5M]
b)	Compare ARM and Cortex-M processors in terms of performance and architecture.	[5M]
	OR	
11.	Discuss the internal architecture of an OMAP processor with a neat block diagram.	[10M]

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