R20

Code No: R20A6902

MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY

(Autonomous Institution – UGC, Govt. of India)

II B.Tech II Semester Supplementary Examinations, April 2025

Embedded Systems

(B.Tech-AIML)

Roll No										

Time: 3 hours **Max. Marks: 70**

Note: This question paper Consists of 5 Sections. Answer **FIVE** Questions, Choosing ONE Question from each SECTION and each Question carries 14 marks.

***

			BCLL	CO(s)	Marks
		SECTION-I			
1	***A***	Explain the different addressing modes of the 8086 microprocessor.	**L2**	**CO-I**	**[7M]**
	B	Explain the architecture of the 8051 micro controller with a block diagram.	**L2**	**CO-I**	**[7M]**
		OR			
2	***A***	Demonstrate the concept of memory segmentation in the 8086 by illustrating how it is used in a real-world application.	**L3**	**CO-I**	**[7M]**
	B	Apply the different operating modes of the 8051 microcontroller to control a specific embedded system scenario.	**L3**	**CO-I**	**[7M]**
		SECTION-II			
3	***A***	What is an embedded system? Explain different applications of embedded system.	**L2**	**CO-II**	**[7M]**
	B	Classify embedded systems based on Complexity & Performance with examples.	**L4**	**CO-II**	**[7M]**
		OR			
4	***A***	Write the characteristic details of embedded systems.	**L1**	**CO-II**	**[7M]**
	B	What are Quality attributes? Explain with respect to embedded systems.	**L2**	**CO-II**	**[7M]**
		SECTION-III			
5	***A***	Write a note on Universal Serial Bus (USB).	**L2**	**CO-III**	**[7M]**
	B	Write a note on Bluetooth communication.	**L2**	**CO-III**	**[7M]**
		OR			
6	***A***	Implement communication between two microcontrollers using the I2C Bus and explain its working with an example.	**L3**	**CO-III**	**[7M]**
	B	Use sensors and actuators in a practical application and describe their role in an embedded system.	**L3**	**CO-III**	**[7M]**
		SECTION-IV			
7	***A***	Develop an embedded system design that incorporates an Embedded Operating System approach and explain its advantages in real-world scenarios.	**L3**	**CO-IV**	**[10M]**
	B	Explain the Assembly Language to machine language conversion process	**L2**	**CO-IV**	**[4M]**

		OR			
8	***A***	Write a brief note on Embedded firmware Development Languages/Options.	**L2**	**CO-IV**	**[7M]**
	B	What are the advantages and drawbacks of High level language based Embedded firmware Development?	**L4**	**CO-IV**	**[7M]**
		SECTION-V			
9	***A***	Write an Embedded C program to interface LCD to 8051 Microcontroller.	**L3**	**CO-V**	**[7M]**
	B	Write an Embedded C program to interface Keypad to 8051 Microcontroller.	**L3**	**CO-V**	**[7M]**
		OR			
10	***A***	Compare and contrast if-else and switch-case statements in Embedded C.	**L4**	**CO-V**	**[7M]**
	B	Explain for, while, and do-while loops with syntax and examples.	**L3**	**CO-V**	**[7M]**

***