Code No.: EC722OE	R20	H.T.No.			8	R						

CMR ENGINEERING COLLEGE: : HYDERABAD
UGC AUTONOMOUS
IV–B.TECH–I–Semester End Examinations (Supply) – April - 2025
INTRODUCTION TO EMBEDDED SYSTEMS
(Common for CSC, CSM, IT)

[Time: 3 Hours] **[Max. Marks: 70]**

Note: This question paper contains two parts A and B.
Part A is compulsory which carries 20 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 and may have a, b, c as sub questions.

PART-A **(20 Marks)**

1.	a)	Define an embedded system with suitable examples.	[2M]
	b)	What are the main applications of the embedded systems?	[2M]
	c)	Differentiate between GPP and ASIC.	[2M]
	d)	Compare I2C and SPI Communication interfaces.	[2M]
	e)	Describe the advantages of 'Assembly language' based Embedded firmware development.	[2M]
	f)	Define Modulo Assembler.	[2M]
	g)	Sketch Monolithic Kernal model.	[2M]
	h)	Interpret the role of Multiprocessing in RTOS.	[2M]
	i)	Analyze the importance of hardware integration.	[2M]
	j)	Differentiate between compiler and cross compiler.	[2M]

PART-B **(50 Marks)**

2.		Illustrate purpose of Embedded Systems with suitable examples?	[10M]
		OR	
3.		Classify operational and non-operational quality attributes?	[10M]
4.		What is Communication Interface? Explain any two types of onboard communication interfaces used in Embedded system?	[10M]
		OR	
5.	a)	Explain the role of watch dog timer in embedded system.	[5M]
	b)	Write a brief note on memories.	[5M]
6.		Explain the techniques for mixing assembly with 'C'?	[10M]
		OR	
7.		Compare and contrast various embedded firmware design' approaches in detail?	[10M]
8.	a)	Explain about kernel space, user space and memory swapping.	[5M]
	b)	Explain architecture of device drivers?	[5M]
		OR	
9.	a)	Relate how multithreading can improve the performance of an application.	[5M]
	b)	Present the concept of Shared Memory in IPC?	[5M]

10.	Define Integrated Development Environment and its relevance in the design of embedded systems.	[10M]
	OR	
11.	Illustrate various software debugging techniques in detail.	[10M]

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