

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY GURAJADA VIZIANAGARAM
III B.Tech II Semester Supplementary Examinations, November-2025
EMBEDDED SYSTEMS
(ECE)

Time: 3 hours

Max. Marks: 70

Answer any **FIVE** Questions **ONE** Question from **Each unit**

All Questions Carry Equal Marks

UNIT-I			
1.	a)	Explain the classification of embedded systems with examples.	[7M]
	b)	Illustrate an application-specific Embedded system with suitable example.	[7M]
		(OR)	
2.	a)	What is Sensor? Explain its role in Embedded System Design? Illustrate with an example.	[7M]
	b)	What is the difference between General Purpose Processor (GPP) and Application Specific Instruction Set Processor (ASIP)? Give an example for each.	[7M]
UNIT-II			
3.	a)	Explain the different on-board communication interfaces in brief.	[7M]
	b)	Explain the difference between I2C and SPI communication interface.	[7M]
		(OR)	
4.	a)	Explain serial communication using I2C, CAN and USB bus in detail.	[7M]
	b)	Discuss the role of Watchdog Timer in Embedded System.	[7M]
UNIT-III			
5.	a)	Discuss the different 'embedded firmware design' approaches in detail.	[7M]
	b)	Explain the advantages of 'Assembly language' based Embedded firmware development.	[7M]
		(OR)	
6.	a)	What is the difference between compiler and cross-compiler? Explain in detail.	[7M]
	b)	Explain the different bit manipulation operations supported by 'Embedded C'.	[7M]
UNIT-IV			
7.	a)	What is kernel? What are the different functions handled by a general-purpose kernel. Explain in detail.	[7M]
	b)	Explain the different computational models in embedded system design.	[7M]
		(OR)	
8.	a)	Explain the commonly used thread standards for thread creation and management by different operating systems.	[7M]
	b)	Explain the different types of non-preemptive scheduling algorithms. State the merits and de-merits of each.	[7M]
UNIT-V			
9.	a)	Explain the various elements of an embedded system development environment.	[7M]
	b)	Explain the various details held by a Map file generated during the process of cross-compiling an Embedded C project.	[7M]
		(OR)	
10.	a)	What are the different techniques available for embedded firmware debugging? Explain them in detail.	[7M]
	b)	Sketch the block diagram of digital camera and explain digital camera implementation in an embedded operating system.	[7M]
