Total No. of Printed Pages: 2

PRN No.	

PAPER CODE	U3IS-294DCRE

(AY:2025-26) December 2025 (ENDSEM) EXAM

TY/B.TECH (SEMESTER - I)

COURSE NAME: Embedded Processors Branch: E&TC COURSE CODE: ETUA31234D

(T.Y (Pattern 2023)

Time: [1Hr 30 Min] **[Max. Marks: 40]**

(*) Instructions to candidates:

1) **Figures to the right indicate full marks. Use of scientific calculator is allowed**
2) **Use suitable data wherever required**
3) **All questions are compulsory. Solve any two sub question each from Questions 1 and 2**
4) **Solve any one sub question (2 marks) from Questions 3 ,4 ,5 and 6 and sub question of 4 marks is compulsory from questions 3,4,5,and 6**

Q. No.	Question Description	Max. Marks	CO mapped	BT Level
Q.1	a) Justify the usage of ARM architecture for embedded applications.	[4]	CO1	Analyze
	b) Illustrate the interrupt processing ability in LPC 2148	[4]	CO1	Apply
	c)With the help of interfacing diagram write embedded C code/pseudo code to interface ADC with LPC 2148.	[4]	CO1	Apply
Q2	a) Deduce the benefit of NVIC in cortex architecture.	[4]	CO2	Apply
	b) Justify why cortex architecture is most popular towards an embedded application.	[4]	CO2	Analyze
	c) How CMSIS in cortex is useful in developing an application? illustrate with an example.	[4]	CO2	Understand
Q3	a) Write steps to configure GPIO port in STM-32 based controller.	[2]	CO3	Understand
	OR			
	b) How timers can be used for generating stable delays in STM32.	[2]	CO3	Apply
	c) With any four features, illustrate the superior candidature of the STM-32 architecture in the embedded development.	[4]	CO3	Analyze
Q4	a) What is meant by energy aware design in modern microcontrollers.	[2]	CO4	Knowledge
	OR			
	b) What are the benefits of Containerized Embedded Software development in modern applications.	[2]	CO4	Understand

	c) Justify any 04 features of microcontrollers that qualifies it to be referred to as modern microcontroller.	[4]	CO4	Apply
Q.5	a) What is significance of saturated arithmetic in DSP applications?	[2]	CO5	Understand
	OR			
	b) Exemplify with an application need of MAC unit in DSP processor.	[2]	CO5	Apply
	c) How DSP architecture facilitates fast signal processing?	[4]	CO5	knowledge
Q.6	a) What features of microcontrollers running machine learning applications?	[2]	CO6	Knowledge
	OR			
	b) Justify advantages of running ML model on microcontroller than cloud.	[2]	CO6	Analyze
	c) With the help of schematic diagram, explain a suitable application of machine learning to be deployed on microcontroller.	[4]	CO6	Create