

PRN No.	
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PAPER CODE	U315-299D[ESE]
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**(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) With the help of interfacing diagram write embedded C code/pseudo code to interface 16x2 LCD display with LPC 2148	[4]	CO1	Apply
	b) Illustrate any three applications of LPC 2148 based on its features.	[4]	CO1	Apply
	c) Bring out the significance of CPSR and SPSR in LPC 2148.	[4]	CO1	understand
Q2	a) Compare bit banding in cortex as against traditional bit manipulation in Cortex architecture.	[4]	CO2	Knowledge
	b) Illustrate tail chaining in NVIC of cortex architecture	[4]	CO2	Apply
	c) With reference to difference in the architectural features of ARM7 and cortex, illustrate advantage of any 02 features with application.	[4]	CO2	Understand
Q3	a) With HAL function write an embedded C code to toggle LED connected to pin 1 of GPIO A with random delay. OR	[2]	C03	Apply
	b) Explain any two architectural security aspects in STM-32.	[2]	CO3	Understand
	c) What are various ADC conversion modes in STM-32? Illustrate the benefit of injected conversion mode of ADC with an example.	[4]	CO3	knowledge

Q4	a) Enlist any two modern microcontrollers with an application.	[2]	CO4	knowledge
	OR			
	b) List any two significant features of modern microcontrollers.	[2]	CO4	Understand
	c) Elaborate on any two modern trends in the embedded applications that call for the usage of modern microcontrollers.	[4]	CO4	Create
Q.5	a) Brief any one application of DSP processor in medical devices.	[2]	CO5	Create
	OR			
	b) Why are floating-point units suitable for DSP processors?	[2]	CO5	Knowledge
	c) Justify the suitability of Harvard architecture towards digital signal processing.	[4]	CO5	Knowledge
Q.6	a) How is TensorFlowlite different from TensorFlow?	[2]	CO6	Understand
	OR			
	b) Enlist any four platforms that catalyze ML applications on microcontrollers.	[2]	CO6	Knowledge
	c) With the help of schematic diagram, explain a suitable application for machine learning to be deployed on microcontroller.	[4]	CO6	Create