Total No. of Printed Pages: 02

PRN No.	

PAPER CODE	U814-295-D(BSE)

(AY:2024-25) December 2024 (ENDSEM) EXAM

TY B.TECH (SEMESTER - I)

COURSE NAME: E&TC **Branch: Embedded Processors** **COURSE CODE: ETUA31205D**

(T.Y PATTERN 2020)

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)** Explain the key features of ARM7, ARM9, and ARM11 processors?	[4]	1	Understand
	b) List the different modes of operation in the ARM7 processor.	[4]	1	Remember
	c) Describe the ARM7 data flow model and its significance in processor performance	[4]	1	Understand
Q2	**a)** Explain how the PLL and VPB divider work in the system control block of the LPC22xx microcontroller.	[4]	2	Evaluate
	b) Write a C program to configure the GPIO pins of LPC22xx for toggling an LED.	[4]	2	Create
	c) Explain how does the architecture of LPC22xx help in reducing the power consumption of embedded systems?	[4]	2	Evaluate
Q3	a) Explain key peripherals of the LPC21xx microcontroller used in interfacing applications?	[2]	3	Evaluate
	OR			
	b) Compare the functionality of interfacing EEPROM using I2C with interfacing SD card using SPI.	[2]	3	Understand
	c) Explain the process of interfacing a GSM module with LPC22xx using UART communication.	[4]	3	Evaluate
Q4	**a)** Explain the improvements of the ARM Cortex series over the classical ARM series in terms of performance and power efficiency.	[2]	4	Evaluate
	OR			
	b) List the different series in the ARM Cortex family and their primary applications.	[2]	4	Remember
	c) Critically assess the benefits of using the Cortex M series in IoT applications.	[4]	4	Evaluate

Q.5	a) Explain how PWM is used for motor control in ARM Cortex-M3 based microcontrollers. OR b) Explain the main features of the LPC1768 ARM Cortex-M3 based microcontroller? c) Write a C program to control an RGB LED using the GPIO pins of LPC1768.	[2] [2] [4]	5 5 5	Evaluate Understand Create
Q.6	a) Describe the benefits of multicore microcontrollers for processing in embedded systems. OR b) Evaluate the advantages and limitations of using parallel operations in the TMS320C67X DSP for real-time signal processing applications. c) Critically assess how multicore architecture enhances the performance of embedded applications compared to single-core systems.	[2] [2] [4]	6 6 6	Analyze Evaluate Evaluate