



B.E DEGREE EXAMINATIONS: NOV / DEC 2023

(Regulation 2018)

Sixth Semester

ELECTRICAL AND ELECTRONICS ENGINEERING

U18EEI6201: Embedded System

COURSE OUTCOMES

CO1: Understand the fundamentals of Embedded systems and its communication protocols.

CO2: Understand the basic concepts of RTOS for optimized CPU performance.

CO3: Understand the architectural features of ARM processor.

CO4: Apply the instructions to program ARM processor using Embedded C.

CO5: Analyze the internal peripherals of ARM processor using an IDE.

Time: Three Hours

Maximum Marks: 100

Answer all the Questions:-

PART A (10 x 2 = 20 Marks)

(Answer not more than 40 words)

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|--|-----|-------------------|
| 1. Define Embedded system. | CO1 | [K ₁] |
| 2. List the embedded system design constraints. | CO1 | [K ₂] |
| 3. What is the need for pipe lining? | CO2 | [K ₁] |
| 4. How many identifier bits are used in CAN 2.0 A and CAN 2.0 B? | CO2 | [K ₂] |
| 5. Differentiate CISC and RISC Architecture. | CO3 | [K ₂] |
| 6. List the functions of ARM memory Management unit. | CO3 | [K ₁] |
| 7. Mention the features of ARM 7 Family. | CO3 | [K ₂] |
| 8. Compare ARM and Thumb Instruction set. | CO4 | [K ₂] |
| 9. Name any two programming tool used for ARM processor. | CO4 | [K ₂] |
| 10. What is the function of C compiler in IDE? | CO5 | [K ₂] |

Answer any FIVE Questions:-

PART B (5 x 16 = 80 Marks)

(Answer not more than 400 words)

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|---|----|-----|-------------------|
| 11. With neat sketch, explain the product Life cycle model of an Embedded system. | 16 | CO1 | [K ₁] |
| 12. Explain I ² C Protocol with necessary diagram with its frame format. | 16 | CO1 | [K ₁] |

13.	a)	Classify ARM processor modes and describe its function.	8	CO3	[K ₂]
	b)	Compare ARM, Thumb, Jazze mode of ARM processor.	8	CO3	[K ₂]
14.		Categorize ARM Instruction set and explain with a suitable example.	16	CO2	[K ₂]
15.	a)	Explain the role of UART and watchdog timer in ARM processor	8	CO4	[K ₂]
	b)	Describe in detail about profiling and cycle counting.	8	CO4	[K ₂]
16.		With necessary diagram and ARM C code explain PWM technique for 50 % duty cycle.	16	CO5	[K ₂]
