Reg. No.												

Question Paper Code	12196

B.E. / B.Tech. - DEGREE EXAMINATIONS, NOV / DEC 2023

Sixth Semester

Electronics and Instrumentation Engineering

(Common to Instrumentation and Control Engineering)

20EIPC602 - EMBEDDED SYSTEMS

(Regulations 2020)

Duration: 3 Hours Max. Marks: 100

PART-A (10 × 2 = 20 Marks)

Answer ALL Questions

		Marks, K-Level, CO
1.	How embedded systems are classified?	*2,K1,CO1*
2.	What is DMA?	*2,K1,CO1*
3.	Differentiate between Synchronous and Asynchronous communication.	*2,K2,CO2*
4.	List out the features of RS-232 standard.	*2,K1,CO2*
5.	What are the objectives of EDLC?	*2,K1,CO3*
6.	Define conceptualization phase.	*2,K1,CO3*
7.	Differentiate Thread and Process.	*2,K2,CO4*
8.	Define Deadlock condition.	*2,K1,CO4*
9.	Discuss the features of Raspberry Pi.	*2,K2,CO5*
10.	What is the difference between IoT devices and embedded devices?	*2,K1,CO5*

PART - B (5 × 13 = 65 Marks)

Answer ALL Questions

11.	a)	(i) Explain the concept of various memory management techniques.	*7,K2,CO1*
		(ii) Describe the function of timers and various types of timers involved in embedded system.	*6,K2,CO1*
		OR	
	b)	Illustrate with neat diagram about the functional unit of embedded processor.	*13,K3,CO1*
12.	a)	(i) Define port and what are the various types of serial and parallel ports?	*7,K1,CO2*
		(ii) What is SPI protocol and describe its interface?	*6,K1,CO2*
		OR	
	b)	Explain in brief about the RS-485 Serial interface standard.	*13,K2,CO2*

13. a) Explain in detail about the different phases of EDLC with necessary diagram. *13,K2,CO3*

OR

b) Discuss about the various computational models in embedded design. *13,K2,CO3*

14. a) Discuss about pre-emptive and non pre-emptive scheduling with suitable diagram. *13,K2,CO4*

OR

b) Explain in detail about the Priority inversion and Priority Inheritance Technique. *13,K2,CO4*

15. a) Illustrate with suitable diagram about the IoT architecture and its functional element. *13,K3,CO5*

OR

b) Examine in detail about the various IoT protocol stacks used in the layered architecture. *13,K3,CO5*

PART - C (1 × 15 = 15 Marks)

16. a) Illustrate with necessary sketches about the importance of I^2C and CAN bus. *15,K3,CO2*

OR

b) Demonstrate the application of IoT technology along with embedded system in the following application areas: (i) Structural health monitoring (ii) Surveillance (iii) Emergency response. *15,K3,CO5*