Reg. No.												

Question Paper Code	12664

B.E. / B.Tech. - DEGREE EXAMINATIONS, APRIL / MAY 2024

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.	List the functional requirements of Embedded System.	2	K1	CO1
2.	What is the role of in-circuit emulator	2	K1	CO1
3.	Differentiate synchronous and asynchronous communication in serial devices.	2	K2	CO2
4.	What is the need of device drivers?	2	K2	CO2
5.	List the different phases of EDLC.	2	K1	CO3
6.	What is meant by DFG?	2	K1	CO3
7.	Compare preemptive and non-preemptive scheduling.	2	K2	CO4
8.	Define multi-threading.	2	K1	CO4
9.	Define iteration.	2	K1	CO5
10.	Distinguish between a Physical entity and virtual entity.	2	K2	CO5

PART - B (5 × 13 = 65 Marks)
Answer ALL Questions

			Marks	K – Level	CO
11.	a)	Discuss the structural units of embedded processor and how a processor is selected for an embedded system application.	13	K2	CO1
		OR			
	b)	With neat diagram explain the working of Direct Memory Access (DMA) with architecture and timing diagram.	13	K2	CO1
12.	a)	Explain the serial peripheral Interfacing SPI bus.	13	K2	CO2
		OR			
	b)	Explain briefly about the Inter Integrated Circuit (I^2C) protocol.	13	K2	CO2
13.	a)	Illustrate with functional description about the different phases of Embedded Design life cycle method.	13	K2	CO3

OR

	b)	Demonstrate in detail about waterfall model with an example.	*13*	*K2*	*CO3*
14.	a)	Explain in detail about inter process communication and context switching.	*13*	*K2*	*CO4*
		OR			
	b) i)	Explain how interrupt is handled in RTOS.	*8*	*K2*	*CO4*
	ii)	Write a note on multiprocessing and multitasking.	*5*	*K2*	*CO4*
15.	a)	With the help of neat diagram explain the basic building blocks of IoT device and its architecture.	*13*	*K2*	*CO5*
		OR			
	b)	Describe how the IoT technology can be implemented in smart appliances and smoke/gas detection systems.	*13*	*K2*	*CO5*

PART - C (1 × 15 = 15 Marks)

16.	a)	Interpret how thread and process are used in embedded system.	*15*	*K2*	*CO4*
		OR			
	b)	Explain the Sequential program model for seat belt warning system.	*15*	*K2*	*CO3*