24-04-2023

Reg. No.												

Question Paper Code	11794

B.E./ B.Tech. - DEGREE EXAMINATIONS, APRIL / MAY 2023

Seventh Semester

Electrical and Electronics Engineering

(Common to Electronics and Instrumentation Engineering)

EE8691 - EMBEDDED SYSTEMS

(Regulations 2017)

Duration: 3 Hours | Max. Marks: 100

PART - A (10 × 2 = 20 Marks)

Answer ALL Questions

		Marks, K-Level, CO
1.	Mention the steps involved in designing an embedded system.	*2,K1,CO1*
2.	What is meant by Watch-dog timer? List any two applications.	*2,K1,CO1*
3.	Draw the data format of serial communication protocol which finds application in automobiles.	*2,K1,CO2*
4.	What is the purpose of RS232 protocol?	*2,K1,CO2*
5.	Differentiate Sequential programming model and concurrent programming model.	*2,K2,CO3*
6.	State the different modeling in EDLC.	*2,K1,CO3*
7.	Differentiate Task and Process.	*2,K2,CO4*
8.	Classify the scheduling algorithm in RTOS.	*2,K1,CO4*
9.	Mention any four applications of Embedded systems.	*2,K1,CO5*
10.	List the different parameters required for selecting a processor for an ATM application.	*2,K1,CO5*

PART - B (5 × 13 = 65 Marks)

Answer ALL Questions

11.	a)	Explain the structural units of an embedded processor with neat diagram.	*13, K2,CO1*
		OR	
	b)	Elaborate the functions and states of various timing and counting devices.	*13, K2,CO1*
12.	a)	Illustrate the following communication protocols with a neat control frames (i) I^2C and (ii) CAN Bus.	*13,K2,CO2*
		OR	
	b)	Discuss in detail how the SPI protocol interacts with other devices.	*13,K2,CO2*

K1 – Remember; K2 – Understand; K3 – Apply; K4 – Analyze; K5 – Evaluate; K6 – Create

13. a) Describe the various steps of EDLC using a nice illustration. *13,K2,CO3*

OR

b) With a neat illustration, describe the various modeling in EDLC. *13,K2,CO3*

14. a) Explain in detail about the concepts of process and thread in RTOS. *13,K2,CO4*

OR

b) Elaborate how the different types of semaphore are helpful in accessing a critical section in RTOS. *13,K2,CO4*

15. a) Discuss the smart card case study via a beautiful drawing. *13,K2,CO5*

OR

b) Using a simple graphic, explain the functionalities of a digital camera. *13,K2,CO5*

PART - C (1 × 15 = 15 Marks)

16. a) Identify the protocol that can be used as master-slave to establish the communication between two devices and explain its mechanism. *15,K3,CO2*

OR

b) Illustrate the functionalities of a washing machine using a simple graphical view. *15,K3,CO5*