Reg. No.
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**Question Paper Code** 

12778

## M.E. / M.Tech. - DEGREE EXAMINATIONS, APRIL / MAY 2024

First Semester

## M.E - Embedded Systems Technologies 20PESPC103 - DESIGN OF EMBEDDED SYSTEMS

Regulations - 2020

Du	Duration: 3 Hours Max				. Marks: 100			
PART - A $(10 \times 2 = 20 \text{ Marks})$ Answer ALL Questions			Mark	Marks K – Level				
1.	State	the important considerations while selecting a processor.	2	K1	CO1			
2.	What	is the function of timer and counter devices in Embedded System?	2	K2	CO1			
3.	Diffe	rentiate RS232 and RS485.	2	K2	CO2			
4.	Ment	ion the main features of CAN bus.	2	K1	CO2			
5.	Class	sify the three basic scheduling states in OS.	2	K2	CO4			
6.	List t	he difference between RTOS Lite and Full RTOS.	2	K2	CO4			
7.	List t	he types of assemblers.	2	K1	CO5			
8.	State	the importance of Structural and Behavioral description in detail.	2	K1	CO5			
9.	Ment	ion any 4-EDLC Modeling approaches.	2	K1	CO6			
10.	What	are the advantages of Mobile Phone software implementations?	2	K1	CO6			
PART - B ( $5 \times 13 = 65$ Marks) Answer ALL Questions								
11.	· .	Demonstrate the following structural units in embedded processor Hardware Unit	7	K2	CO1			
	1) ii)	Software Unit.	6	K2	CO1			
	/	OR						
	b)	Summarize the concept of	7	K2	CO1			
	i) ii)	Watch Dog Timer (WDT) Real Time Clock (RTC).	6		CO1			
	11)	Real Time Clock (RTC).	Ü	112	001			
12.	a)	Describe the signal using a transfer of byte when using the I2C bus and also the format of bits at the I2C bus with diagram.  OR	; 13	K2	CO2			
	b)	What is the need for a device driver? How do you write a device driver? List the steps involved in writing a device driver.	; 13	K2	CO2			

13.	a)	Justify the following terms with suitable flow diagram and example for (a) Task (b) Process	13	K2	CO4
		(c) Threads and also distinguish Process with Thread.  OR			
	b)	Explain in detail about the terminologies:  (a) Inter-process Communication  (b) Semaphores  (c) Mail box  (d) Pipes.	13	K2	CO4
14.	a)	Narrate in detail with suitable diagram for			
	i)	In- Circuit Emulator.	7		CO5
	11)	Target Hardware Debugging.	6	K2	CO5
	1.	OR	12	W2	CO.5
	b)	Develop in detail about the scope of UML modeling and UML basic element diagram.	13	K2	CO5
15.	a)	Analyze the following different phases of Embedded product Development Life Cycle (EDLC)  (a) Conceptualization (b) Analysis (c) Design (d) Development and Testing (e) Deployment.	13	K3	CO6
		OR			
	b)	Discover with suitable Hardware and Software, explain the case study for a Smart card using Embedded System.	13	K3	CO6
		$PART - C (1 \times 15 = 15 Marks)$			
16.	a)	Explain interrupt mechanism in detail and how polling is used to share an interrupt over several devices.	15	K2	CO3
	<b>b</b> )	OR  Brief about the interrupt vectors and describe how multiple interrupts	15	K2	CO3
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are handled by the devices.