Seat No.:	Enrolment No.

## GUJARAT TECHNOLOGICAL UNIVERSITY BE - SEMESTER-VII(NEW) • EXAMINATION – WINTER 2016

Su	bject	t Code:2171005 Date:21/11/201	16
	U	Name:Embedded Systems	
		0.30 AM to 1.00 PM Total Marks: 7	70
Q.1	2.	Attempt all questions.	07 07
Q.2	<ul><li>(a)</li><li>(b)</li></ul>	Differentiate serial and parallel communication. Explain the buses used for serial communication.  Illustrate the importance of watchdog timer and real time clock in embedded systems.	07 07
	<b>(b)</b>	List and explain the protocols used for wireless and mobile system communication.	07
Q.3	(a) (b)	Elaborate the concept of interrupt service routine.  What is DMA? Using diagram show the operation of a DMA controller.  OR	07 07
Q.3	(a) (b)	Write a brief note on device driver, its functions and programming.  Discuss and compare process, task and thread.	07 07
Q.4	(a)	What is meant by P and V semaphores? Discuss semaphore as event signaling variable.	07
	<b>(b)</b>	Discuss shared data problems and give solutions to such problems.  OR	07
Q.4	(a) (b)	Explain device, file and I/O management in RTOS. Give advantages, disadvantages and uses of mailbox, pipe and socket functions in interprocess communication.	07 07
Q.5	(a) (b)	Name all the RTOS task scheduling models. Describe any one in detail. What is RTOS? Enlist the goals and services provided by RTOS.  OR	07 07
Q.5	(a) (b)	Draw and explain the basic architecture and block diagram of MSP430. Explain the clocking system of MSP430.	07 07

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