Seat No.: _____   Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER–VII (NEW) EXAMINATION – WINTER 2018

Subject Code: 2171711   **Date: 03/12/2018**

Subject Name: Embedded System Design

Time: 10:30 AM TO 01:00 PM   **Total Marks: 70**

Instructions:
1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

			MARKS
Q.1	(a)	Compare Embedded systems with General computing systems.	03
	(b)	Explain Data transfer Instructions of ARM Processor (any Four).	04
	(c)	What is an Embedded System? Explain the block diagram Embedded System in brief.	07
Q.2	(a)	List the Application of ARM Processor.	03
	(b)	Write a short note on Watchdog Timer.	04
	(c)	Explain the MOTOROLA (68HC11) architecture.	07
		OR	
	(c)	Explain the 5 - Stage pipeline structure of ARM organization	07
Q.3	(a)	Give real time application of Timer devices.	03
	(b)	List the various types of Parallel Ports used in ARM processor.	04
	(c)	What is a PORT? Explain any one type of serial Port in detail.	07
		OR	
Q.3	(a)	What are the Role of A/D and D/A Converters in ARM Processor?	03
	(b)	Write a short note on USB Communication Protocol.	04
	(c)	What is an Interrupt controller? Explain the Block diagram of Interrupt controller.	07
Q.4	(a)	Write a C Program for the PWM Modulator.	03
	(b)	Explain memory management in RTOS.	04
	(c)	Draw and Explain the Frame Structure of CAN Protocol.	07
		OR	
Q.4	(a)	Give the various Data types of Basic C.	03
	(b)	Write a program to load 45h data into memory location 0x00000001.	04
	(c)	Explain the I2C communication Protocol with its advantages and disadvantages.	07
Q.5	(a)	Define the Real Time System. Give the various characteristics of RTOS.	03
	(b)	How do the UART indicate the start and end of byte or data frames?	04
	(c)	Explain RTOS architecture in brief.	07
		OR	
Q.5	(a)	Define "Task", "Thread" and "Process" in the context of operating system.	03
	(b)	Explain the concept of ISR under RTOS.	04
	(c)	Explain task handling by RTOS.	07

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