Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–VIII (NEW) EXAMINATION – WINTER 2018

Subject Code: 2180808 **Date: 15/11/2018**

Subject Name: Embedded Systems

Time: 02:30 PM TO 05:00 PM **Total Marks: 70**

Instructions:

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

Q.1	(a)	What is Embedded System? Explain its overview with neat block diagram in detail.	03
	(b)	Differentiate: 1. Digital Signal Processor (DSP) v/s General Purpose Processor (GPP) 2. RAM v/s ROM	04
	(c)	Briefly discuss the SOC of Embedded System and the use of VLSI circuit design technology in it.	07
Q.2	(a)	Classify Embedded systems along with their applications.	03
	(b)	What is Watch Dog Timer? Explain it in detail with suitable example	04
	(c)	Explain the serial communication devices in Embedded System in detail.	07
		OR	
	(c)	Explain in detail the design process in Embedded System.	07
Q.3	(a)	Define: [1] Firmware [2] Cache [3] Interrupt	03
	(b)	What is Real Time Clock? Explain it in detail with suitable Example	04
	(c)	Explain the Interrupt servicing (handling) mechanism in Embedded System.	07
		OR	
Q.3	(a)	Define: [1] Pipes [2] Sockets [3] Signals	03
	(b)	Explain various software tools for designing the Embedded System.	04
	(c)	State the characteristics of Function, ISR and Task in brief.	07
Q.4	(a)	Define: [1] Process [2] Thread [3] Task	03
	(b)	Explain any three wireless and mobile system protocols.	04
	(c)	Explain SEMAPHORES & their functions in Embedded System.	07
		OR	
Q.4	(a)	Enlist the features of MSP430.	03
	(b)	Write a short note on Mailbox.	04
	(c)	What is DMAC? Explain DMAC in Embedded System.	07
Q.5	(a)	Explain File System Organization of an OS in brief.	03
	(b)	Explain Process Management in RTOs.	04
	(c)	Explain various Embedded hardware units and devices used in an Embedded System in detail	07
		OR	
Q.5	(a)	Why does and OS provide two modes, user mode and supervisory mode?	03
	(b)	Explain Memory Management in RTOs.	04
	(c)	Explain Real Time Operating System in detail with neat sketch.	07

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