Seat No.:	Enrolment No

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER- VII • EXAMINATION - WINTER 2014

Subject Code: 171005 Subject Name: Embedded Systems Time: 10:30am TO 01:00 pm Instructions:			Date: 29/11/2014 Total Marks: 70	
		10:30am TO 01:00 pm Total Marks: 7		
		 Attempt all questions. Make suitable assumptions wherever necessary. Figures to the right indicate full marks. 		
Q.1	(a)	(i) "By decreasing the operating clock at a lower frequency reduces the power loss due to heat generation" Justify the statement.(ii) Compare the features and list the applications of Digital Signal Processor and General Purpose Processor.	03 04	
	(b)	Name the various types of memories used in an embedded system and explain in brief the functions assigned to them.	07	
Q.2	(a) (b)	List at least seven software tools used for designing an embedded system and state the significance of them. Explain the following ARM7 instructions with suitable example. (i) BVC (ii) UMLAL	07 07	
	(b)	OR Explain the following ARM7 instructions with suitable example. (ii) RSCMI (ii) SWINE	07	
Q.3	(a)	Explain in detail with example how nested subroutine call (a subroutine that calls another subroutine) is handled in ARM7 processor.	07	
	(b)	Write an assembly language program for ARM7 processor to find number of ONEs in a word (32-bit data) using subprogram FIND_ONE for FIVE words of array. Save result to another array. OR	07	
Q.3	(a) (b)	Draw the block diagram of ARM7 processor and explain it in detail. Write an assembly language program for ARM7TDMI processor to execute the C code statement: $i=0; y=0;$ while $(i < N)$ { $y = y + h[i] * x[i];$ $i++;$ }	07 07	
Q.4	(a)	Explain synchronous, iso-synchronous and asynchronous serial communication	07	
	(b)	modes with suitable example. Write short note on socket functions.	07	
Q.4	(a) (b)	OR Write short note on PCI parallel device bus. What is semaphore? How to apply the concept of it for shared data problem? Explain in detail with an example.	07 07	
Q.5	(a) (b)	Describe the following services of the OS: (i) Process management and (ii) Device management. Explain in brief round robin time slicing scheduling strategy with an example.	07 07	
Q.5	(a)	OR Explain following terms in brief.	07	
	(b)	(i) Kernel (ii) TCB (iii) CPU load List three alternative systems for the OS to respond to hardware source call on interrupt. Explain in detail any one among them.	07	
