

		Register Number:	
B.TECH DEGREE EXAMINATIONS: APR/MAY 2014			
Sixth Semester			
INFORMATION TECHNOLOGY			
CSE 123 : EMBEDDED SYSTEMS			
Time: Three Hours		Maximum Marks: 100	
Answer all the Questions:-			
PART A (10 x 1 = 10 Marks)			
1.	Number of address lines required for a microprocessor to access 1 Kb memory is		
	a) 16	b) 12	
	c) 8	d) 10	
2.	A watchdog timer		
	a) Monitors the interrupt	b) Synchronises the program counter	
	c) Generates pulses	d) Resets the system after a predefined timeout	
3.	CAN stands for		
	a) Computer area network	b) Computer architecture network	
	c) controller architecture network	d) controller area network	
4.	SPI is used for		
	a) LAN Inter face	b) Serial full duplex communication	
	c) Inter processor communication	d) Debugging	
5.	Kernal is		
	a) A node	b) Relocatable object code	
	c) Software portion which provides task scheduling and dispatching	d) Software portion which initiate an event	
6.	Orthogonal instruction set means		
	a) Can be used in any microcontroller	b) All the peripherals use same format of data	
	c) All registers can use all the instructions interchangeably	d) There is no format for the instructions	
7.	Interrupts are not allowed to interrupt the		
	a) high priority tasks	b) Functions	
	c) ISR	d) Critical Section of the code	
8.	A spin lock is used to		
	a) Protect the critical section resources	b) activate the ISR	

	c) As a mailbox	d) To prioritize the interrupts.
9.	The mailbox IPC is used to	
	a) Communicate a message	b) communicate a pointer for a message
	c) pass the global parameters	d) pass the local parameters.
10.	MUCOS codes are in	
	a) C and Assembly	b) FORTRAN
	c) C++	d) Java
PART B (10 x 2 = 20 Marks)		
11.	Write the significance of cross compiler in an embedded system.	
12.	Why is an embedded processor preferred over a microprocessor or microcontroller in an embedded system?	
13.	Compare the CAN and PCI bus.	
14.	What is handshaking in bus interface?	
15.	Define Harvard architecture.	
16.	What are the addressing modes used in PIC Microcontroller?	
17.	How is RTOS different from desktop OS?	
18.	What are semaphores?	
19.	Give the four memory allocation related functions of RTOS.	
20.	List the software architecture layers for designing a Digital Camera System.	
PART C (5 x 14 = 70 Marks)		
21.	a) i)	Draw the block diagram of an embedded system and explain its components.(10)
	ii)	Explain briefly about the different types of digital memories.
(OR)		
	b)	With a block diagram explain the System –on a Chip embedded system.
22.	a) i)	Compare the various bus standards that are used to provide parallel communication. (9)
	ii)	With tree diagram explain the different ways in which synchronous communication can be effected from a master to slave device. (5)
(OR)		

	b)		Explain the signals during a transfer of a byte when using the I ² C bus and write the format of the bits at the I ² C bus with diagrams.	
			Compare the RS232C and UART protocols used for serial communication in Embedded Systems.	
23.	a)	i)	List the features of program memory and data memory in PIC.	
		ii)	With suitable diagrams, explain the different reset systems in PIC	
(OR)				
	b)		Write a program to add two 8 bit numbers in PIC assembly language with suitable algorithm and explain the addressing mode of each command used.	
24.	a)		Explain the various alternatives for responding to a hardware source call on interrupts with necessary diagrams.	
(OR)				
	b)		Write short notes on : i) Spin lock ii) inter process communication using signals	
25.	a)		Identify the tasks for the operation of a digital camera. Explain the various inter process communication methods required in implementing the application.	
(OR)				
	b)		Discuss in detail memory allocation and deallocation functions in RTOS.	
