

Model Question Paper-1 with effect from 2019-20 (CBCS Scheme)

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Fourth Semester B.E. Degree Examination Course :Microcontroller and Embedded System

TIME: 03 Hours

Max. Marks: 100

- Note: 01. Answer any **FIVE** full questions, choosing at least **ONE** question from each **MODULE**.
02. Question on a topic of a Module may appear in either its 1st or/and 2nd question.

Module -1			*Bloom's Taxonomy Level	Marks
Q.01	a	Discuss the ARM design philosophy	L2	6
	b	Discuss ARM bus technology	L2	6
	c		L2	8
OR				
Q.02	a	Differentiate between RISC and CISC	L2	4
	b	Describe conditional execution. write the different code suffix	L2	8
	c	Briefly describe the concept of exceptions, interrupts and the vector table	L2	8
Module-2				
Q. 03	a	With a neat diagram explain Barrel Shifter.	L1	8
	b	How to convert C function to an assembly function. Explain Considering simple C program main.c that prints the squares of the integers from 0 to 9.	L3	8
	c	Write a program for simple data guard that can be used to protect data from being written by another task. The SWP instruction should "holds the bus" until the transaction is complete.	L3	4
OR				
Q.04	a	Explain in detail about Register Allocation	L2	8
	b	Write an program for forward and backward branch by considering an example.	L3	6
	c	Explain the instruction scheduling	L2	6
Module-3				
Q. 05	a	What is an embedded system? Differentiate between general purpose computing system and embedded system.	L2	6
	b	Write a short note on a)Real Time Clock b)Watch Dog Timer	L2	6
	c	Explain the different step modes for stepper motor.	L2	8

OR				
Q. 06	a	What is Programmable Logic Device (PLD)? What are the different types of PLDs? Explain the role of PLDs in Embedded System design.	L1	6
	b	Explain the various purpose of embedded systems in detail with illustrative examples.	L2	6
	c	Explain the sequence of operation for communicating with an I2C slave device.	L2	8
Module-4				
Q. 07	a	Explain Quality attribute in embedded system development ?What are the different quality attribute to be considered in an embedded system design.	L2	8
	b	Explain the different communication buses used in automotive application.	L2	6
	c	Compare the following: i. C' v/s Embedded C. ii. Compiler' v/s 'Cross-Compiler'.	L2	6
OR				
Q. 08	a	Explain time to market and time to prototype. explain its significance in product development.	L2	6
	b	Explain with a program the Mixing of Assembly Language with High Level Language	L3	8
	c	Explain the assembly language based embedded firmware development with a diagram and mention its advantages and disadvantages.	L2	6
Module-5				
Q. 09	a	Write a multithreaded application to print "Hello I'm in main thread" from main thread and "Hello I'm in new thread"	L3	8
	b	Explain Multi Threading	L2	8
	c	Four process Id's P1, P2, P3, P4 run in the order as shown in the table. The estimated completion time (burst time is given). Calculate the wait time if quantum time or time slice = 2 ms.	L3	4
OR				
Q. 10	a	Explain the role of Integrated Development Environment (IDE) for embedded software development.	L2	8
	b	Discuss Boundary scan based hardware debugging in detail.	L2	6
	c	Explain Round robin process scheduling with interrupts.	L2	6