



ASSIGNMENT-1

Batch	2019 - 2023		
Year/Semester/Section	III / VI / A	Department	ECE
Course Code-Title	18EC62-Embedded Systems		
Name of the Instructor	Mr. Dileep J		

Assignment No: 1		Total Marks: 15		
Date of Issue: 13/04/2022		Date of Submission: 28/04/2022		
Sl. No	Assignment Questions	K Level	CO	Marks
1.	Briefly describe the functions of the various units with the architectural block diagram of ARM Cortex M3	Understanding (K2)	CO1	2
2.	Discuss the functions of R0 to R15 and other special registers in Cortex M3	Understanding (K2)	CO1	2
3.	Explain the Two stack model of ARM Cortex M3	Understanding (K2)	CO1	2
4.	Illustrate the Reset Sequence of ARM Cortex M3	Understanding (K2)	CO1	2
5.	Briefly discuss features of built in nested vector interrupt controller	Understanding (K2)	CO1	2
6.	Explain 3 types of program status registers with neat diagram	Understanding (K2)	CO2	1
7.	Discuss applications of ARM Cortex M3 processors	Understanding (K2)	CO2	1
8.	Make use of instruction set of ARM and Briefly explain shift and rotate instructions	Applying (K3)	CO2	1
9.	Make use of instruction set of ARM and Explain load and store instructions with example	Applying (K3)	CO2	1
10.	Make use of instruction set of ARM and explain the following with example BFC, RBIT, SMULL, REV16, PUSH, POP, SBFX, MRS	Applying (K3)	CO2	1

Course In charge

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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

SESSION: 2021-22 (EVEN SEMESTER)

ASSIGNMENT-2

Batch	2019 - 2023		
Year/Semester/Section	III / VI / A	Department	ECE
Course Code-Title	18EC62/17EC62 - Embedded Systems		
Name of the Instructor	Mr. Dileep J		

Assignment No: 2		Total Marks: 10		
Date of Issue: 02/06/2022		Date of Submission: 13/06/2022		
Sl. No	Assignment Questions	K Level	CO	Marks
1.	Build the classification of embedded system	Applying (K3)	CO3	1
2.	Construct the features of the following I2C Bus, SPI bus, IrDA, Opto-coupler, Zigbee, WiFi, Bluetooth	Applying (K3)	CO3	1
3.	Illustrate different types of memories	Understanding (K2)	CO3	1
4.	What is an embedded system? Justify the purpose of embedded system with example for each.	Applying (K3)	CO3	1
5.	Construct the application areas of embedded system	Applying (K3)	CO3	1
6.	Differentiate between i) RISC and CISC ii) Harvard and Princeton Architecture iii) Big Endian and Little Endian Architecture iv) General Purpose Computing System and Embedded Operating System	Applying (K3)	CO3	1
7.	Make use of ARM instructions to blink LED using 'C' Language.	Applying (K3)	CO2	1
8.	Explain how CMSIS provides standard access interface for embedded software.	Understanding (K2)	CO2	1
9.	Make use of neat diagram to explain the organization of CMSIS and its benefits.	Applying (K3)	CO2	1
10.	Make use of ARM instructions to calculate the sum of 1 to 10 numbers.	Applying (K3)	CO2	1


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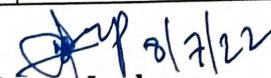
DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

SESSION: 2021-22 (EVEN SEMESTER)

ASSIGNMENT-3

Batch	2019		
Year/Semester/Section	VI A	Dept	ECE
Course Code-Title	18EC62 - Embedded Systems		
Name of the Instructor	Mr. Dileep J		

Assignment No: 3		Total marks: 20		
Date of Issue: 08/07/22		Date of Submission: 14/07/22		
Sl.No	Assignment Questions	K Level	CO	Marks
1.	Explain operational, non-operational attributes and Quality attributes of an embedded system.	Understanding (K2)	CO4	2
2.	a) Explain the components and its design of a washing machine with neat diagram and also explain its working. b) Explain different types of serial bus interface used in automotive communication.	Understanding (K2)	CO4	2
3.	Make use of neat diagram to explain how source file to object file transition take place.	Applying (K3)	CO4	2
4.	a) Explain different 'Embedded firmware design' approach in detail. b) Explain Computational Models in Embedded System.	Understanding (K2)	CO4	2
5.	Design a coin operated public telephone unit based on FSM model.	Applying (K3)	CO4	2
6.	Three processes with process IDs P1, P2, P3 with estimated completion time 10, 5, 7 milliseconds respectively enter the ready queue together. A new process P4 with estimated completion time 2 ms enters the 'Ready' queue after 2 ms. Assume all the processes contain only CPU operation and no I/O operations are involved. Calculate the waiting time and Turn Around Time (TAT) for each process and the average waiting time and Turn Around Time in the SRT scheduling.	Applying (K3)	CO5	2
7.	Differentiate between Hard Real time system and Soft Real time system with an example for each.	Understanding (K2)	CO5	2
8.	Explain how operating systems are classified.	Applying (K3)	CO5	2
9.	Explain operating system architecture with neat block diagram.	Understanding (K2)	CO5	2
10.	Explain the different characteristics of Embedded system.	Understanding (K2)	CO5	2


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