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School of Computer Science & Engineering
B.Tech (H) Program

Internal Assessment - 2 - Set 1
Academic Year: 2023 - 24
Term: Jan to May 24
Semester 2 Sections: All (A - I)

Date: 06-05-2024 **Duration: 1 hour 30 min**
Course Code: CS1120
Course Name: Embedded Systems & Microcontroller
Max Marks: 20

Mobile Phones, Smart Watches or any other internet enabled devices are treated as malpractice.

Student Name: **USN:** **Section:**

Instructions:
All questions are compulsory. There are 4 questions of 5 marks each.
Total = 20 Marks

Sl. No.	Questions	Marks	BT	CO
1	a) Interpret the meaning of digit "4" in the **RP 2384** nomenclature. Illustrate the significance of digit "4" with its calculation. What can you conclude from the result? b) What does the acronym UART stand for? How many UART modules are there in RP2040? c) What is the minimum number of assembly instructions needed to perform the following operation. **a = b + c + d - e**.	2+2+1= 5	3	6

2	Analyse the given assembly code and write the contents of registers for each line of instruction. Illustrate how the result is stored in **Big Endian Memory.**
	Note: Byte addressable memory
	MOV R0, #0x1000
	LDR R1, #0x0ABCD876
	STR R1, [R0]
		1+1+3 =5	3	6

3	a) Consider two, 32 bit numbers -5 and +3 . Perform ADD operation on them and **illustrate** the steps involved in the addition. Also, identify the contents of flags in APSR after the execution. b) Identify the type of Endianess suitable for a system that needs to deal with different data types and sizes.	4+1 = 5	3	4

4	Examine the code snippet in C given below and write the complete program where :
	The C program should get the input from the user and call the assembly function.
	The assembly function should be the equivalent of the **power_1** function and the result should be returned back to the C program.
	int **power_1**(int a, int b)
	{
	if (a<=b)
	return a;
	else
	return b++;
	}
		5	4	4