PES University, Bangalore



(EstablishedunderKarnatakaActNo.16of2013)

**B.Tech., 4thSemester, March 2022**

**UE20CS252: Microprocessor and Computer Architecture**

**Assignment – Week 6**

**Last Date of Submission : 20th March 2022.**

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| **Sl #** | **Question** |
| **1** | Write a program in ARM7TDMI-ISA to find the sum of all the digits in an 32bit number.  **Code :**  .data  a: .word 2137453647  b: .word 0    .text  ldr r0,=a  ldr r3,=b  ldr r1,[r0]  mov r5,#0  mov r2,#0;sum  and r4,r1,#1  add r2,r2,r4  loop:  mov r1,r1,lsr #1  and r4,r1,#1  add r2,r2,r4  add r5,r5,#1  cmp r5,#31  bne loop  str r2,[r3]  swi 0x011  .end  **Screenshot :** |
| **2** | Write a program in ARM7TDMI-ISA to find the number of occurrences of a given character in a string. Example: Given string : My name is Bond. Character : ‘n’. Expected Output : Display 2 in a register.  **Code :**  .data  str: .asciz "my name is bond"  letter: .asciz "n"    .text  ldr r0, =str  ldr r1, =letter  ldr r5,[r1]  mov r4,#0    loop:  ldrb r2, [r0]  cmp r2, #0  beq empty  cmp r2,r5  beq found  add r0, r0, #1  b loop    found:  add r4,r4,#1  add r0,r0,#1  b loop    empty:  swi 0x011    .end  **Screenshot :** |