Embedded Systems End Sem Lab Exam –June 2020

Date: 1/6/20 Time: 3PM to 5PM Mode of conduction: Online

1. Write a complete ARM assembly language program for the following Pseudocode. Declare and initialize the variables in the appropriate memory area. 10M

```
Num = 153
Sum = 0
WHILE Num IS NOT 0
    rem ← Num modulo 10
    Sum ← Sum + (rem)^3
    divide Num by 10
 END WHILE

 IF sum equals to number
    Store 0xFF in the memory
 ELSE
    Store 0xAA in the memory
 END IF
```

2. Write an embedded C program to display " OnLII" and "tESt" alternatively, with one second delay in between, on the Seven Segment Display units (SSD) in LPC1768. Use Timer module of LPC1768 to introduce one second delay. Assume P_{CLK} = 3Mhz and timer resolution = 1 ms. Assume that the eight segments of all the SSD units are connected to the port pins P0.4 to P0.11 and the SSD units can be enabled one by one using the port pins P0.23 to P0.26. 10M