Roll - 200050006
Ques - 2

In this question, we are asked to design a program for calculating the GCD of two numbers present at the registers R1 and R2 and store their GCD at register R3.

The basic algorithm or the way of calculating GCD:
There are 3 conditions based on the values of registers R1 and R2-

a) R1 > R2 b) R1 < R2 c) R1 = R2

If R1 > R2 then subtract R1 - R2 and store the result in R1 itself.
If R1 < R2 then subtract R2 - R1 and store the result in R2 itself.
If R1 = R2 then value stored in both R1 and R2 are same which is the GCD of the numbers that were actually present in R1 and R2 and we can store that value in register R3.

CMP R1, R2 calculates the value of R1 - R2 and sets the CPSR values.
BGT mentions the part of the code if R1 > R2 and similarly BLT mentions the part of the code of R1 < R2. and BEQ mentions the part of the code if R1 = R2.