NB : - only coding part is solved here

Ans:-

I have applied a simple algorithm to find the ramanujan number by running two loops one from i=1 to i<=N^1/3(ramanujan number) and the second loop is running from j = i+1 to j<= N^1/3 through the process it is checking for equality of i^3 + j^3 =N^3 twice (i.e there should be two ways in the programme setting the register values and performing the appropriate arithmetic operation the code in assembler follows as:-)

```
mov r0, 1  /*number iterating from 1  upto N(ramanujan number)*/
/* initializing all values */
mov r1, 0
mov r2, 0
mov r7, 0
loop1:
        mov r1, r1+1
        mul r3, r1, r1
        mul r3, r3, r1   /* cube of r1*/
        cmp r3, r0
        mov r2, r1
        blt .loop2
        mov r0, r0+1 /* increasing r0 by one */
        /* resetting all values t  */
        mov r1, 0
        mov r2, 0
        mov r7, 0
        mul r6, r0, r0
        mul r6, r6, r0
        .loop1
```

```
loop2:
        mov r2, r2+1
        mul r4, r2, r2
        mul r4, r4, r2   /*finding cube of r2 */
        add r5, r3, r4
        cmp r5, r6
        beq .add_r7_1 /* increases the value r7 by one */
        cmp r7, 2  /* checking that there should be 2 possible combination of sum of cubes of
        two numbers is equal to cube of a different number*/
        beq .print_r0 /* prints the value of r0 */
        cmp r4, r0
        blt .loop2 /*  if r4< r0 it will again call loop2 */
        .loop1    /* otherwise it should call loop1 */

add_r7_1:
        add r7, r7+1;
print_r0:
        __some code which prints and breaks all loops__
```