BIM303 MICROCOMPUTERS
TERM PROJECT

Basic Idea Write an assembly program which opens 5 locks in 20 tries. The lock mechanism is explained with an algorithm given below. The program must display a text "Locks are not open" and exit if your program can't open locks in 20 tries.

Detailed Explanation

1. Display the number of tries on **Seven Segment Display Output** in Emulation Kit. If the number of tries is greater than 20 then end the program.
2. Use the following algorithm to open locks:

```
START:
if(Number of tries>20)
{
    print("Locks are not open")
    exit
}
R=Random Number (Between 0 and 9)
key=R and 5
key1=(key*R+5) mod 5
if (key1==0)
{
    print("Lock1 is open")
    key2=key OR R
    if(key2!=0)
    {
        print("Lock2 is open")
        key3= SAR (key+R),2
        if(key3!=0)
        {
            print("Lock3 is open")
            key4=key XOR R
            if(key4!=0)
            {
                print("Lock4 is open")
                key5= key*R
                if(key5==0)
                {
                    print("Lock5 is open and I am out")
                }
                else
                jmp START
            }
            else
            jmp START
        }
        else
        jmp START
    }
    else
    jmp START
}
else
jmp START
```

3. You can use "INT 1Ah/AH=00h" to generate a random number (R). See the documentation for further explanation.
4. Create a PRINT procedure that runs the same code block for printing each message. You must print messages on **ASCII LCD Output** in Emulation Kit.