BITSILICON BEGINNER ASSIGNMENT 1

By Jeremy William Desouza(2025B7PS1149G)

NOTE-:
I am submitting the attached digital logic and Verilog assignments as requested. Although I am not currently part of BITSilicon, I was informed that completing and submitting this assignment would lead to direct induction into the program. Kindly consider this submission for my direct induction as per our previous discussion.
Regards

PART A

1)BINARY->11111111.011
OCTAL->377.3
HEXADECIMAL->FF.6

2)53.625

3)100111=2^(5)+2^(2)+2^(1)+2^(0)
Now i found individual remainders of each of the above terms with 3
The remainders are -1,1,-1,1 respectively.
As the sum of the remainders is 0 hence the number is divisible by 3.

4)23 in binary(8-Bits)=00010111
To get the 1's complement flip all the bits
11101000
Now we add 1 to the 1's complement to get the 2's complement
ANS->11101001

5)F=(A+B)(A'+C)(B+C')
First I expanded the first brackets
F=(AA'+AC+A'B+BC)(B+C')
We know that AA'=0 so now F=(AC+A'B+BC)(B+C')
This (AC+A'B+BC) can be simplified to (AC+A'B) by using the redundancy theorem
Now F=ABC+A'BC'+ACC'+A'BB which can be further simplified to F=ABC+A'BC'+A'B by using BB=B and CC'=0.
F=ABC+A'B(C+1)=ABC+A'B=B(AC+A')=B(A'+C)
The final simplified express for F=A'B+BC.

6)F=C

Minterm	A	B	C	Output (F)
m0	0	0	0	0
m1	0	0	1	1
m2	0	1	0	0
m3	0	1	1	1
m4	1	0	0	0
m5	1	0	1	1
m6	1	1	0	0
m7	1	1	1	1

A/BC	00	01	11	10
A=0	0	1	1	0
A=1	0	1	1	0