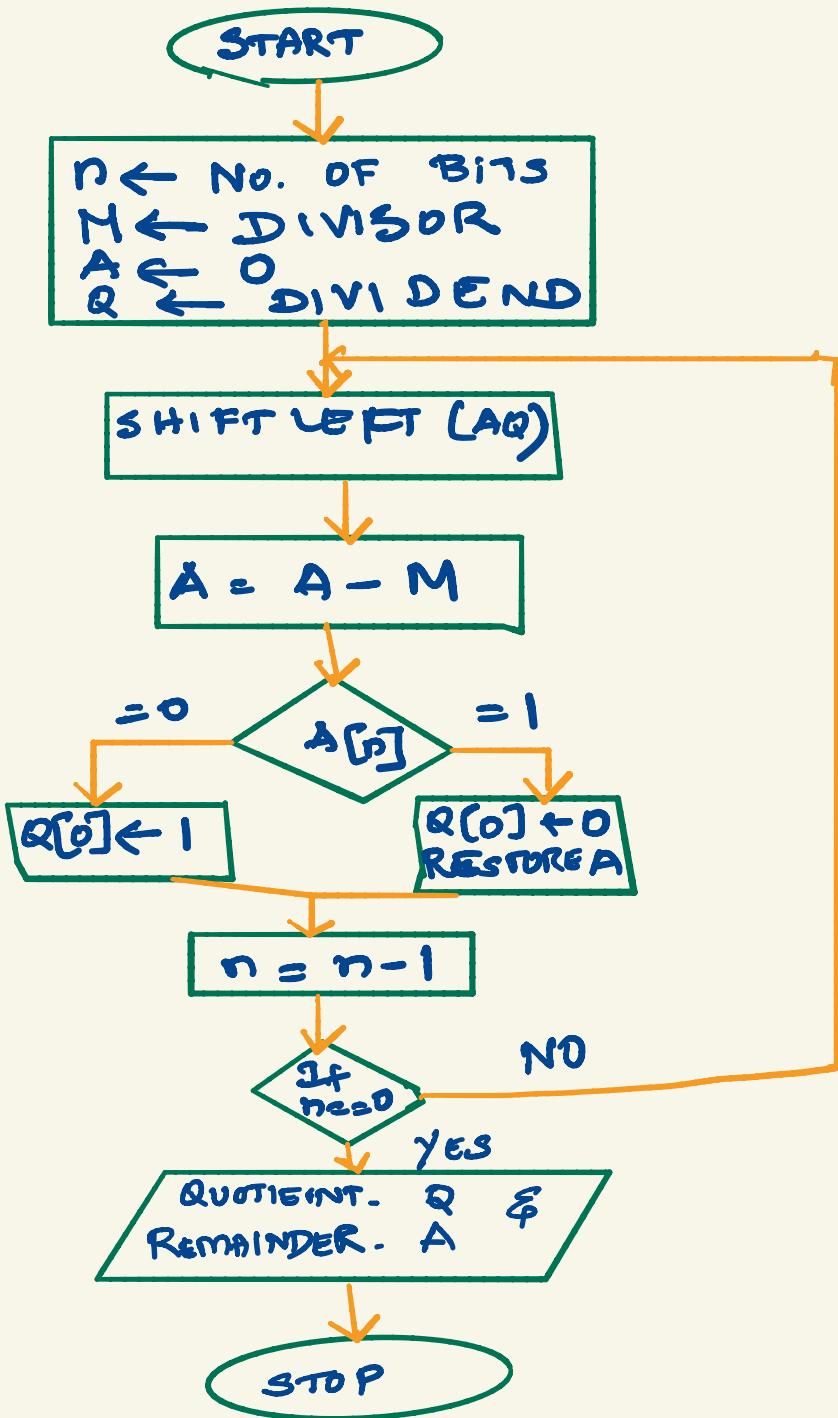
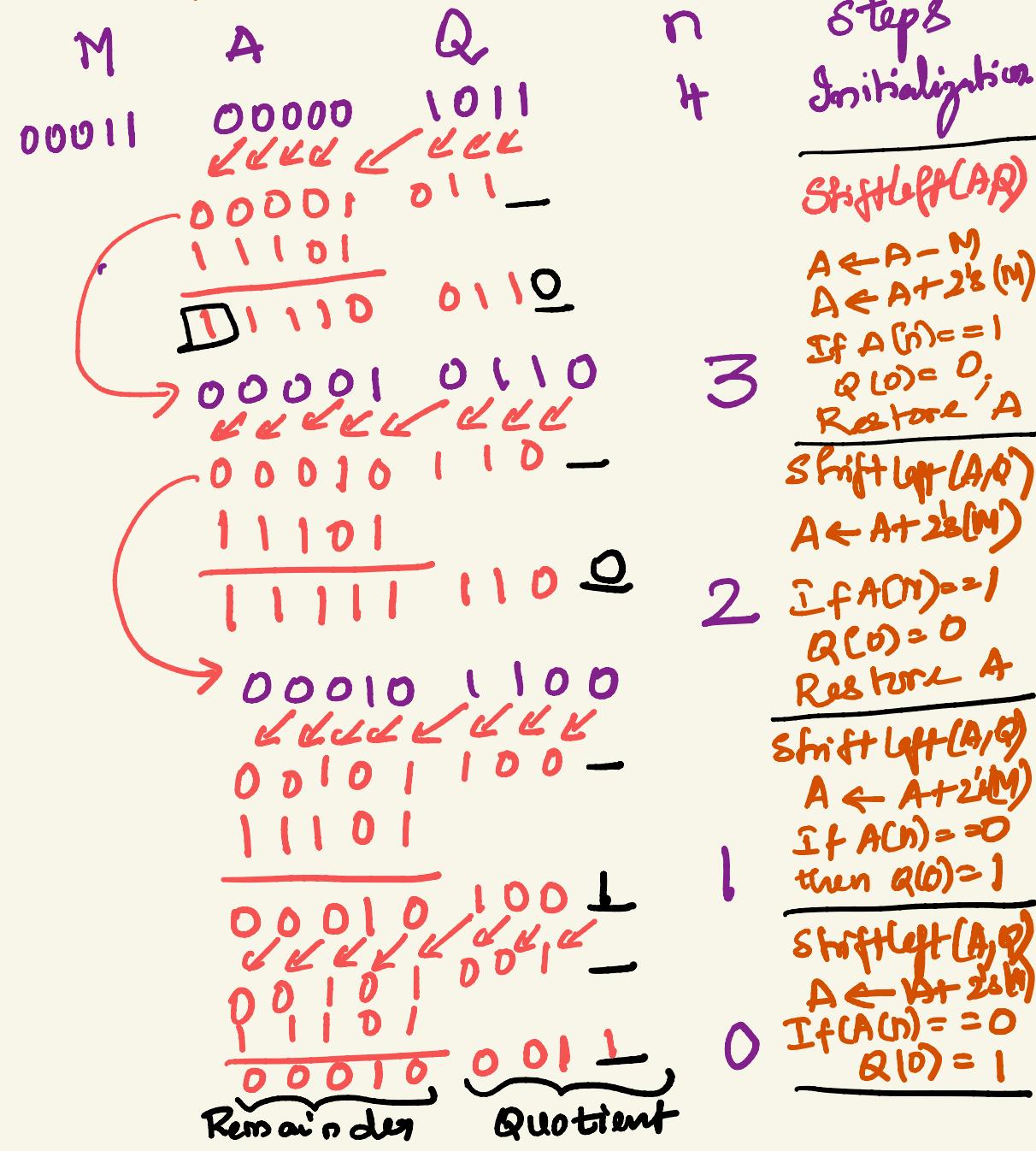



Restoring Division Algorithm

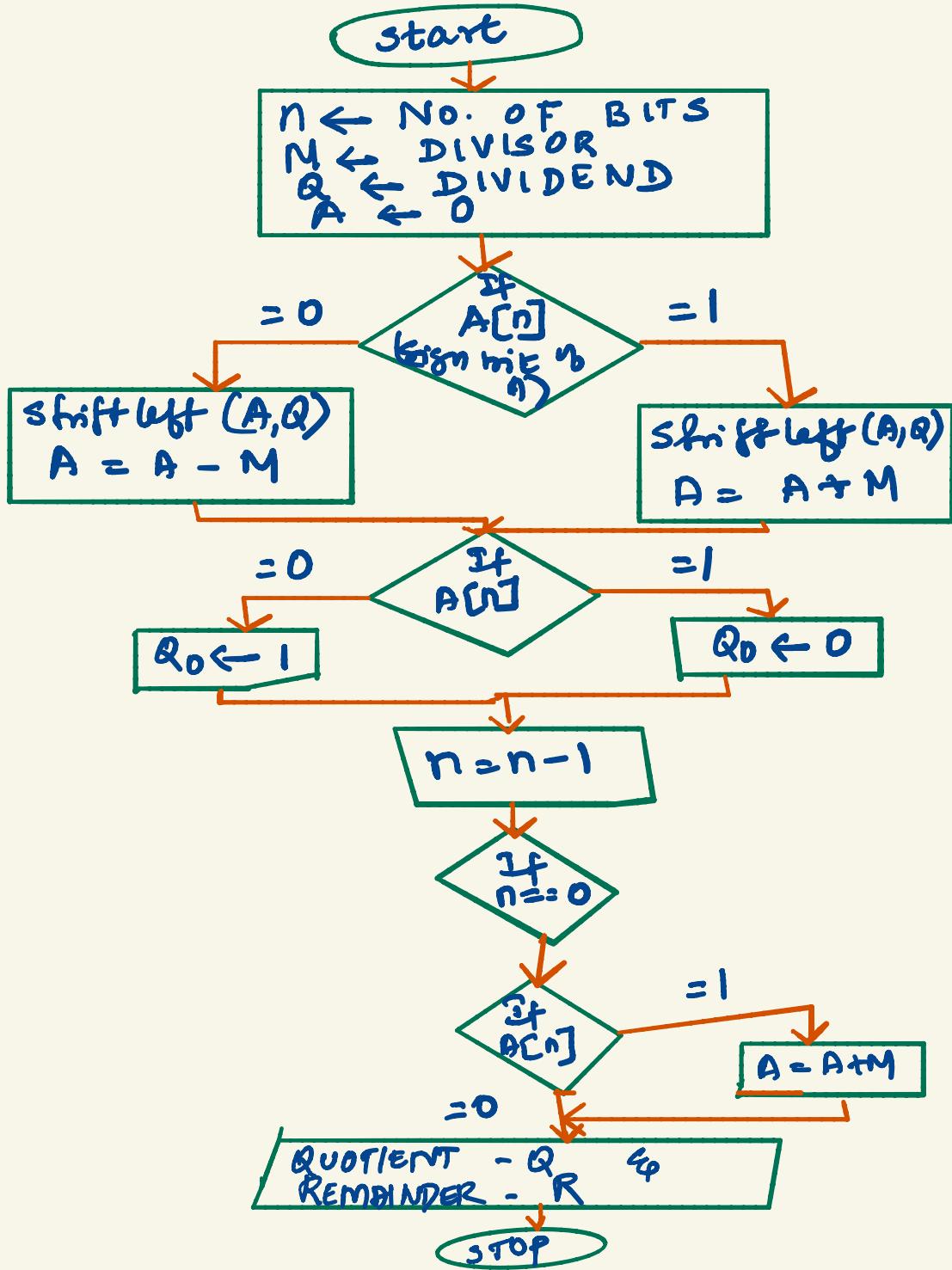


Eg., $11101 \text{ (Q)} / 11 - \text{ DIVIDEND}, 11 - \text{ DIVISOR}$

Ans: 3 (QUOTIENT) & 2 (REMAINDER)
 $M = 1101, -M = 1101, Q = 101$



NON- RESTORING DIVISION ALGORITHM



Eg., 11101 \Rightarrow DIVIDEND (n), S = DIVISOR (m)
 $M = 00011, -M = 1101, Q = 1011$

M	A	Q	n	steps
00011	<u>00000</u>	<u>1011</u>	4	Initialization
	<u><u>00001</u></u>	<u><u>011</u></u> —	3	ShiftLeft(A, n)
	<u><u>11101</u></u>	<u><u>0110</u></u>	2	$A = A - M$ $A = B + 2^b(M)$
	<u><u>11110</u></u>	<u><u>0110</u></u>	1	If $A[n] == 1$ $Q[0] = 0$
	<u><u>11110</u></u>	<u><u>0110</u></u>	0	ShiftLeft(A, n)
	<u><u>11111</u></u>	<u><u>1100</u></u>		$A = B + M$ If $B(n) == 0$ then $Q[0] = 1$
	<u><u>00010</u></u>	<u><u>1001</u></u> —		ShiftLeft(A, n)
	<u><u>00010</u></u>	<u><u>0011</u></u> —		$A = A - M$ If $A(n) == 0$ then $Q[0] = 1$
				Remainder Quotient