Construct FSM for divisibility by 3 testers from decimal number

* Decimal number is I={0,1,2,3,4,5,6,7,8,9}
* If number is divisible by 3 output is “1”. Which means it is divisible.
* And if not divisible by 3 then output is “0”.
* We can also use the output as “yes “and “no”.
* Therefore set O={0,1}
* We can group the digit together as per divisibility group therefore new input set will be I={()()()} therefore depending upon the reminder value (reminder 0 if number is divisible and reminder 1,2 if no is not divisible )the set state of machine are S={S0,S1,S2}
* S0- reminder state
* S1- 1 reminder state
* S2=2 reminder state
* The state transition function STF IXS🡪S

|  |  |  |  |
| --- | --- | --- | --- |
| i  S | (0,3,6,9) | (1,4,7) | (2,5,8) |
| S0 | S0 | S1 | S2 |
| S1 | S1 | S2 | S0 |
| S2 | S2 | S0 | S1 |

* Machine function table IXS🡪O

|  |  |  |  |
| --- | --- | --- | --- |
| i  S | (0,3,6,9) | (1,4,7) | (2,5,8) |
| S0 | 1 | 0 | 0 |
| S1 | 0 | 0 | 1 |
| S2 | 0 | 1 | 0 |