

ID- 17811054

Section - 0

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Answer to the ques. no. 01

Given that,

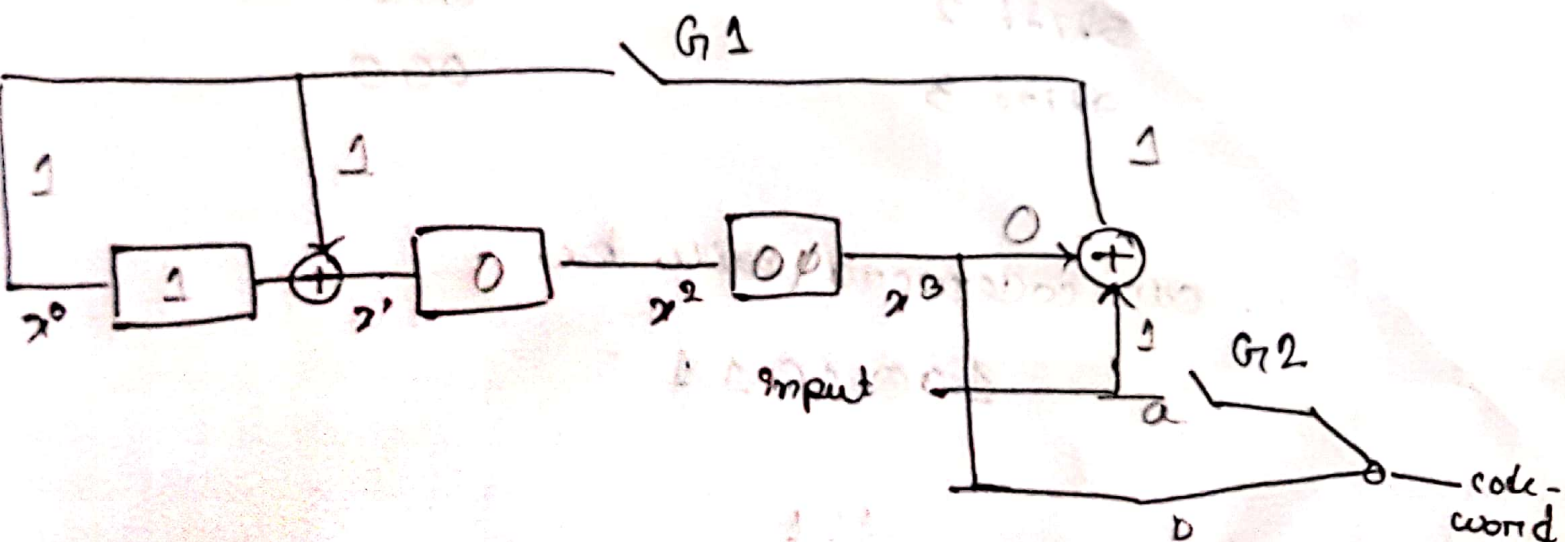
eg:  $(6,3)$  cyclic code  $n=6$

$k=3$

$m = 6 - 3 = 3$

$u = 1011$

as  $m=3 \therefore g(x) = 1 + x + x^3$



input	shift register (initial value)
—	000
1	110
1	101
1	100
0	100
1	

now, we have no input, so, now,  $G_1$  will be  
and  $G_2$  will be connected to  $a$  &  $b$ .

So, now

<del>shift</del>	<del>regist</del> register content
Shift 1	010
Shift 2	001
Shift 3	000

∴ our codeword will be

1001011

decodable code

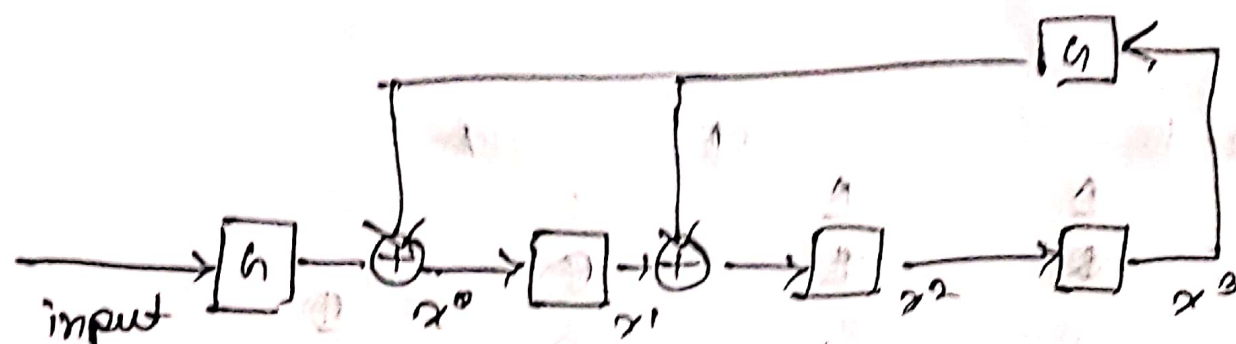
001011

Shift

input

Register contents  
000 (initial)

1



001011

Shift

input

Register content  
000 (initial)

1

1

100 ✓

1

1

110 ✓

2

1

011 ✓

3

0

011

4

1

1011

5

0

101

6

0

So, the de. code is not correct.



Ans-2

Given that, code rate =  $\frac{1}{3}$

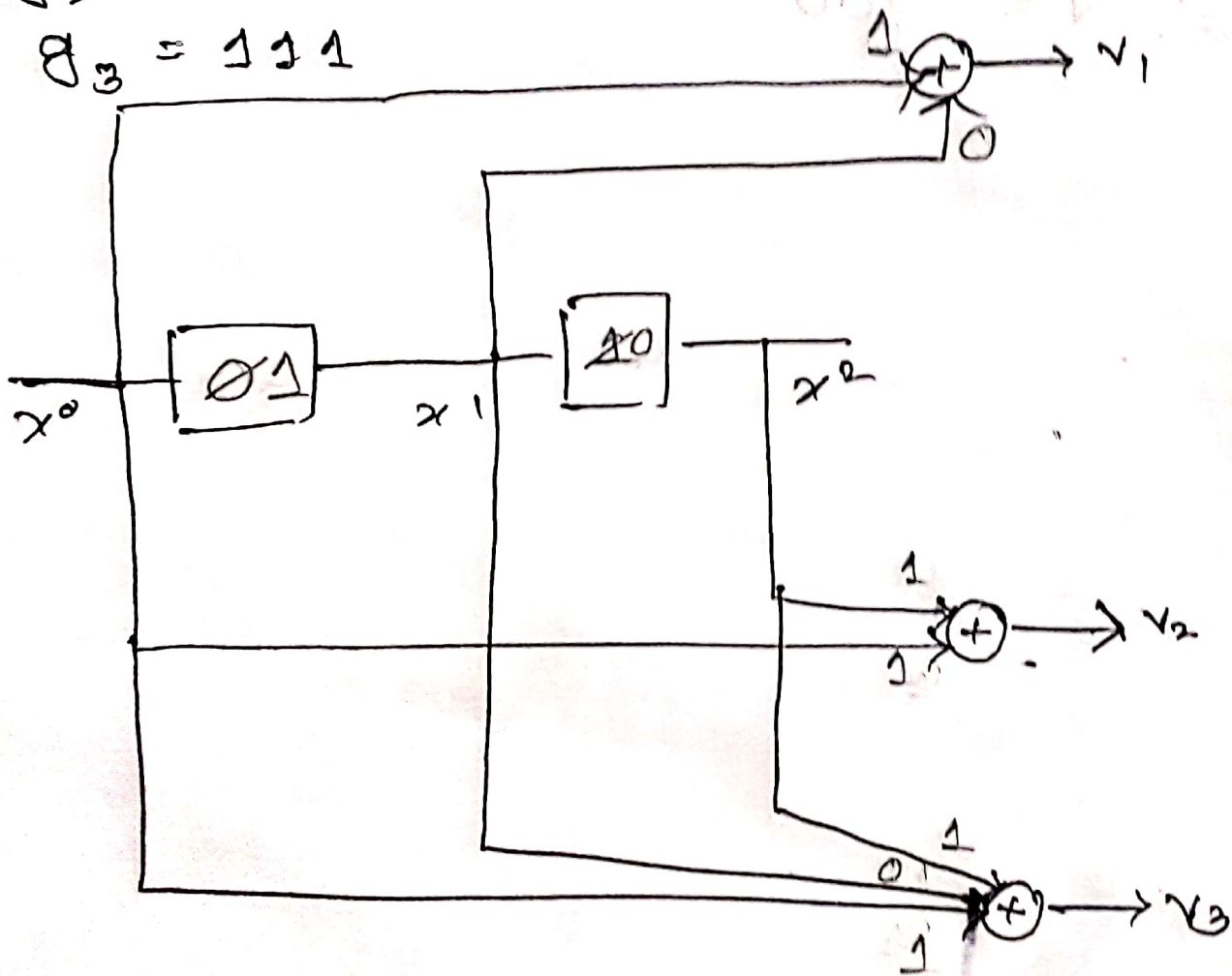
$$\therefore k = 1, n = 3$$

$$m = 2$$

$$g_1 = \begin{matrix} x^0 & x^1 & x^2 \\ 1 & 1 & 0 \end{matrix}$$

$$g_2 = 101$$

$$g_3 = 111$$



<u>u</u>	<u>Shift register</u>	<u>v</u>
no input	000 (initial)	1
1	10	111
0	01	101
1	10	100

~~v<sub>1</sub> v<sub>2</sub> v<sub>3</sub>~~  
~~v = 100~~

∴ v = (111

101

100)