19. Design a combinational circuit with 3 inputs and 1 output. The output is 1, when the binary value of input is less than 3. The output is 0 otherwise.

⟹

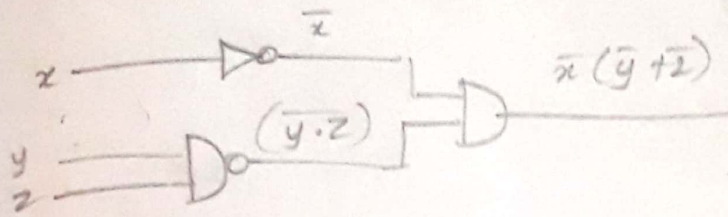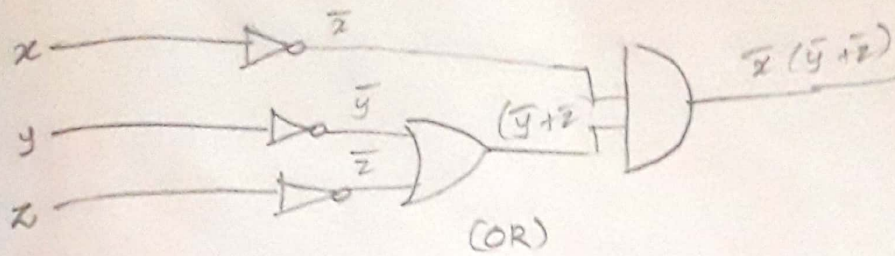|	x	y	z	o/p
0	0	0	0	1
1	0	0	1	1
2	0	1	0	1
3	0	1	1	0
4	1	0	0	0
5	1	0	1	0
6	1	1	0	0
7	1	1	1	0

$2^3 \rightarrow 8$ combination

Full adder

K-map:

yz \ x	$\bar{y}\bar{z}$ 00	$\bar{y}z$ 01	yz 11	$y\bar{z}$ 10
$\bar{x}$ 0	1	1	0	1
x 1	0	0	0	0

$= \bar{x}\bar{y} + \bar{x}\bar{z}$

$= \bar{x}(\bar{y}+\bar{z})$

2. Q)

x ——
y ——
z ——

$\bar{x}(\bar{y}+\bar{z})$

(OR)

$\bar{x}(\bar{y}+\bar{z})$

2. Q) Design a combinational circuit with 3 i/p and 1 output. The output is 1 when the binary value of i/p is even no & otherwise 0.

	x	y	z	o/p
0	0	0	0	1
1	0	0	1	0
2	0	1	0	1
3	0	1	1	0
4	1	0	0	1
5	1	0	1	0
6	1	1	0	1
7	1	1	1	0

x \ yz	$\bar{y}\bar{z}$ 00	$\bar{y}z$ 01	yz 11	$y\bar{z}$ 10
$\bar{x}$ 0	1 $_0$	0 $_1$	0 $_3$	1 $_2$
x 1	1 $_4$	0 $_5$	0 $_7$	1 $_6$

$= \bar{z}$

$z \quad \rightarrow \quad \bar{z} \quad y = z$