



SNS COLLEGE OF TECHNOLOGY

(An Autonomous Institution)

COIMBATORE-35

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19ECB231/ Digital Electronics

parity checker & parity generators





Parity Generator and Checkers

- **Error** can **occurs** as digital codes are being **transferred** from **one** point to **another** .
- The errors take the **form** of **undesired changes** in the **bits** that make up the coded information
- A **1** can change to **0** or **0** to **1** due to **component malfunction** or **electrical noise**.



Parity bit Generation Methods

- Many systems, employ a parity bit as a means of detecting a bit error .
- One of the simplest and most widely used schemes for error detection is the **parity bit method**
- The two different method are used :
 - 1. **Even parity generator method.**
 - 2. **Odd parity generator method.**



Even parity generator method :

Even parity means attaching an **extra bit** to a group of bits to produce an **even number of 1's** as shown in table 1

Table 1

Even-Parity-Generator Truth Table

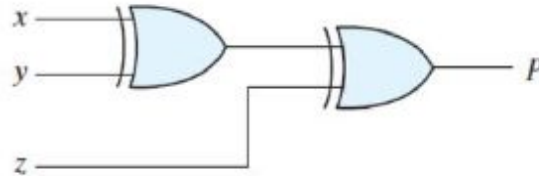
Three-Bit Message			Parity Bit
<i>x</i>	<i>y</i>	<i>z</i>	<i>P</i>
0	0	0	0
0	0	1	1
0	1	0	1
0	1	1	0
1	0	0	1
1	0	1	0
1	1	0	0
1	1	1	1



P can be expressed as a three-variable exclusive-OR function:

$$P = x \oplus y \oplus z$$

The logic diagram for the parity generator is shown below :





Odd parity generator method :

Odd parity means attaching an **extra bit** to a group of bits to produce an **odd number of 1's** as shown in table 2

Table 2

Odd Parity-Generator Truth Table

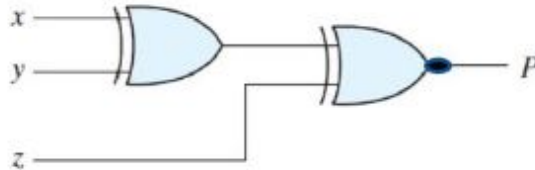
Three-Bit Message			Parity Bit
<i>x</i>	<i>y</i>	<i>z</i>	<i>P</i>
0	0	0	1
0	0	1	0
0	1	0	0
0	1	1	1
1	0	0	0
1	0	1	1
1	1	0	1
1	1	1	0



P can be expressed as a three-variable exclusive-OR function:

$$P = x \oplus y \oplus z$$

The logic diagram for the parity generator is shown below :





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Thank You!