

Received hamming Code  $\Rightarrow$  0110101

$D_7$	$D_6$	$D_5$	$P_4$	$D_3$	$P_2$	$P_1$
0	1	1	0	1	0	1

Detecting Error:

Step 1: we have  $P_1; D_3; D_5; D_7$   
 $\Rightarrow$  1 1 1 0 } odd parity  
Error Exist

so,  $P_1 = 1$

Step 2: Analysing bits 2, 3, 6 & 7  $\Rightarrow$

$P_2$	$D_3$	$D_6$	$D_7$
$\Rightarrow$ 0	1	1	0

 } Even parity  
No Error

so;  $P_2 = 0$

Step 3: Analysing bits 4, 5, 6 & 7

$P_4$	$D_5$	$D_6$	$D_7$
$\Rightarrow$ 0	1	1	0

 } Even parity  
No Error

so;  $P_4 = 0$

Correcting Error

Error Word  $E = \begin{array}{|c|c|c|} \hline D_7 & P_6 & P_1 \\ \hline 0 & 0 & 1 \\ \hline \end{array}$  equivalent to 1  
 which show that 1st bit has error.

So, we need to invert 1st bit

$\Rightarrow$   $D_7 \quad D_6 \quad D_5 \quad P_4 \quad D_3 \quad P_2 \quad P_1$

Correct  $\rightarrow$   $0 \quad 1 \quad 1 \quad 0 \quad 1 \quad 0 \quad 0$