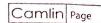
Name: Auishkar . K. Pokale ROIL NO.-13 Class: SY CJF Camlin Page 1 LAB Assignment-4 Title: - Error detection and correction Aim: To woite a program for error detection and correction using Hamming code. Objectives: 1) To encode & decode original data bits with help of pasity bits. 2) To demonstrate use of error control protocoli 1) Types of errors Essoas can be of those type, namely single bit essoas multiple bit essost & boast essoss. 2) concept of posity bits: It is a single bit that can be appended to a binary string. It is a set to either I or o to make the total number of 1-bits either even or odd. The puspose of a pasity bit is to pasuide a simple wary 3) Hamming code example: Hamming codes are family of linear error correcting codes invented by Richard hamming in 1950. Can correct upto two-bit error a correct one-pit esson without detection of unconsected exact



eg. clata 100 00 01

no. of data bit =m=7

to caeculate parity bits

23>7+24

23>7+24

7=4 (by hit & brak)

total no. of bits to be considered is ofmall

(Alternate 1 bit) =  $R_1 = D_3, D_5, D_4, D_9, D_1, \exists 1+0+0+0+1 \Rightarrow 0$ (2 bit)  $R_2 = D_3, D_6, D_7, D_{10}, D_{11} \Rightarrow 1+0+0+0+1 \Rightarrow 0$ (4-bit)  $R_4 = D_5, D_6, D_7 \Rightarrow 0+0+0 \Rightarrow 0$ (8-bit)  $R_8 = D_9, D_{10}, D_{11} \Rightarrow 0+0+1 \Rightarrow 1$ 

5-bit get flipped when received on toursmussion line

11 10 9 8 7 6 5 4 3 2 1

 $R_1 = R_1, D.8, D.5, D.7, D.0, D.1. \Rightarrow 0+1+1+0+0+1 \Rightarrow 1$   $R_2 = R_2, D.3, D.6, D.7, D.0, D.1. \Rightarrow 0+1+0+0+0+1 \Rightarrow 0$   $R_4 = R_1, 1D.5, D.6, D.7 \Rightarrow 0+1+0+0=1$   $R_8 = R_5, D.9, D.1. D.1, D.1 \Rightarrow 0+0+1 \Rightarrow 0$ 

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(0.2) Explain in balef 2 types of error control mechanism.

Error - Detection- This simply means identification of error.

Error - Correction: It means solving or fixing errors. It is

expox-Correction: It means solving or fixing expors. It is a very conty & is long procedure.