

ERROR DETECTION AND CORRECTION

1. Why do errors occur in data transmission?

Source of error	Cause

2. Parity is one method of error detection. Show how a parity bit is added to the data stream using an odd parity protocol.

Data to send	Parity bit	What happens when a device receives the data with a parity bit:
01101010		
11001101		
10101100		



Introduction to A level Computer Science

3. Parity is used to detect an error, but it can also be used to correct errors too.

Assuming odd parity, show what happens if the data stream received is: 0011 0100 1011 0111

Draw a circle around the bit that is incorrect.

One obvious disadvantage is that the data stream now contains more data to be transmitted. Increasing the chance of error and decreasing the data transfer rate.

4. Show why the data stream 0111 0100 1011 0111 can be received as 1101 0100 0001 0111 and still not be detected as corrupt.

In what unique situation is parity not self-correcting?

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5. Find out how alternative algorithms, echo back and checksums work.