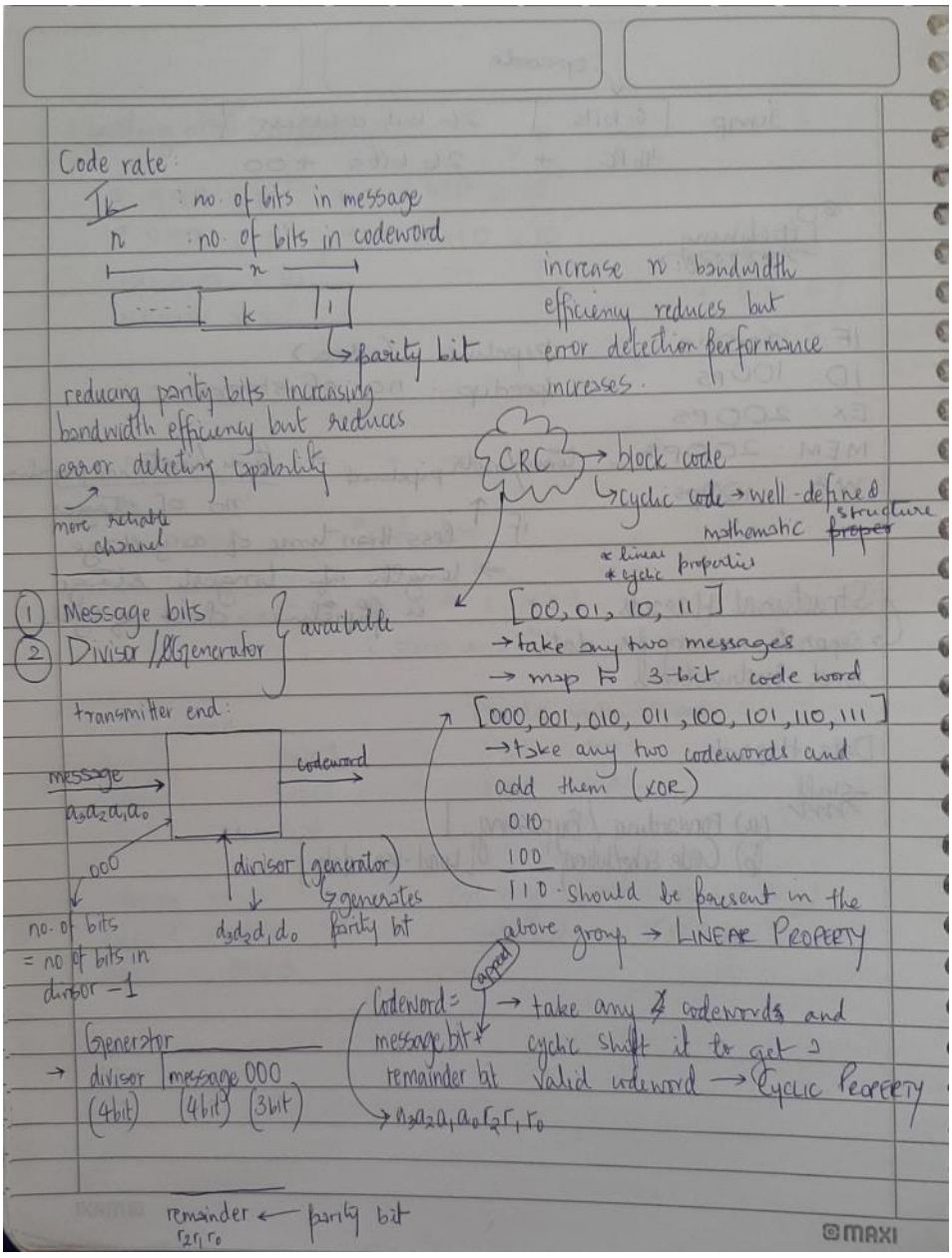
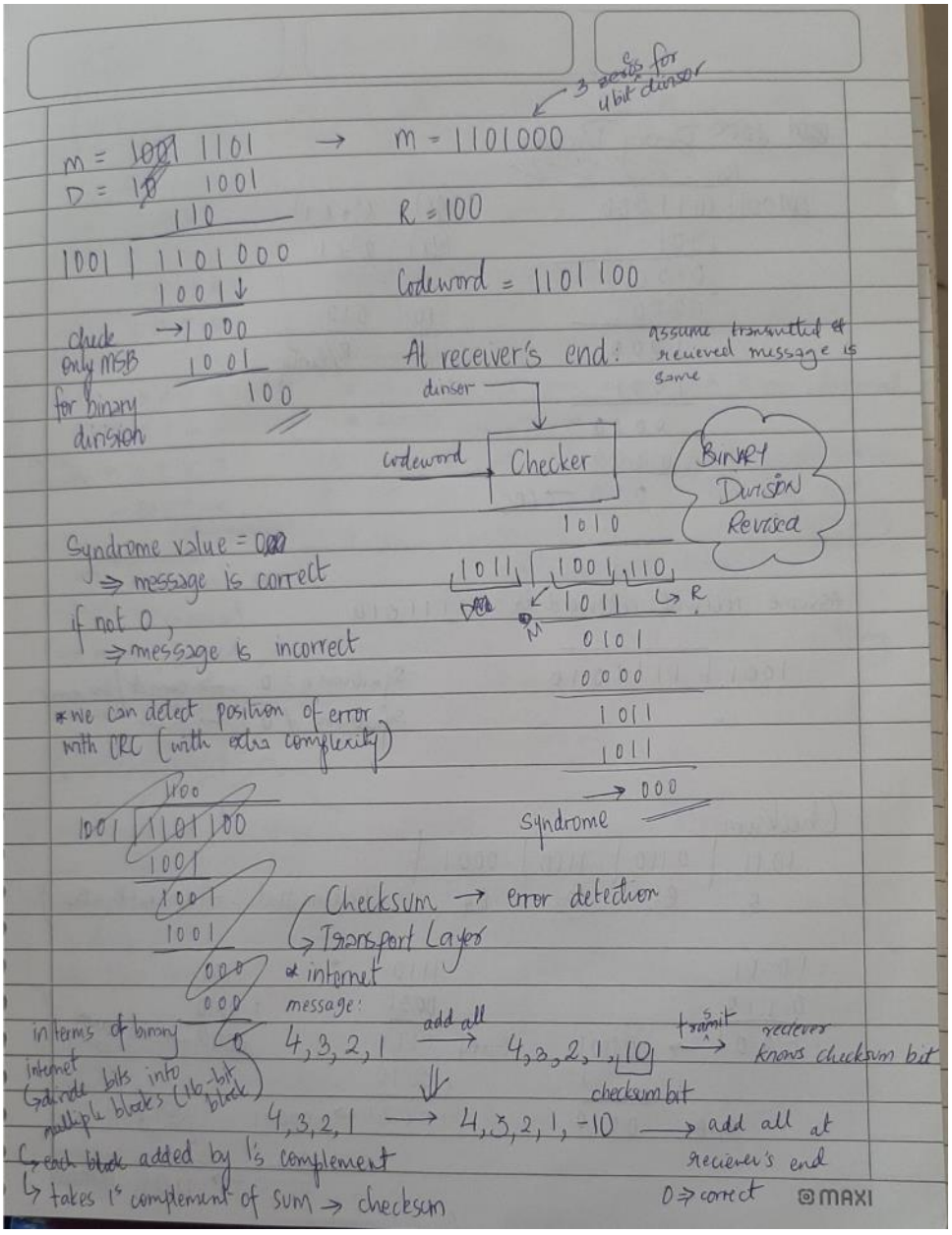
4. Data Link Layer 2

Wednesday, February 17, 2021 12:57 PM




3 zeros for 4 bit divisor
m = 1001 1101 → m = 1101000
D = 10 1001
110
R = 100
1001 | 1101000
1001↓
Codeword = 1101100
check only MSB for binary division
→1000
1001
100
At receiver's end:
Assume transmitted & received message is same
divisor
codeword
Checker
Binary Division Revised
1010
Syndrome value = 000
⇒ message is correct
if not 0,
⇒ message is incorrect
1011 | 1001 | 110
R
1011
0101
0000
1011
1011
000
Syndrome
*we can detect position of error with CRC (with extra complexity)
1100
1001 | 1101100
1001
1001
1001
000
000
Checksum → error detection
↳ Transport Layer & internet
message:
4,3,2,1
add all
4,3,2,1,10
checksum bit
transmit
receiver knows checksum bit
in terms of binary internet (divide bits into multiple blocks (16-bit block)
4,3,2,1 → 4,3,2,1,-10 → add all at reciever's end
0 ⇒ correct
↳ each block added by 1's complement
↳ takes 1's complement of sum → checksum
MAXI