DALHOUSIE UNIVERSITY

CSCI 6704

Advanced Topics in Networks

Assignment 3

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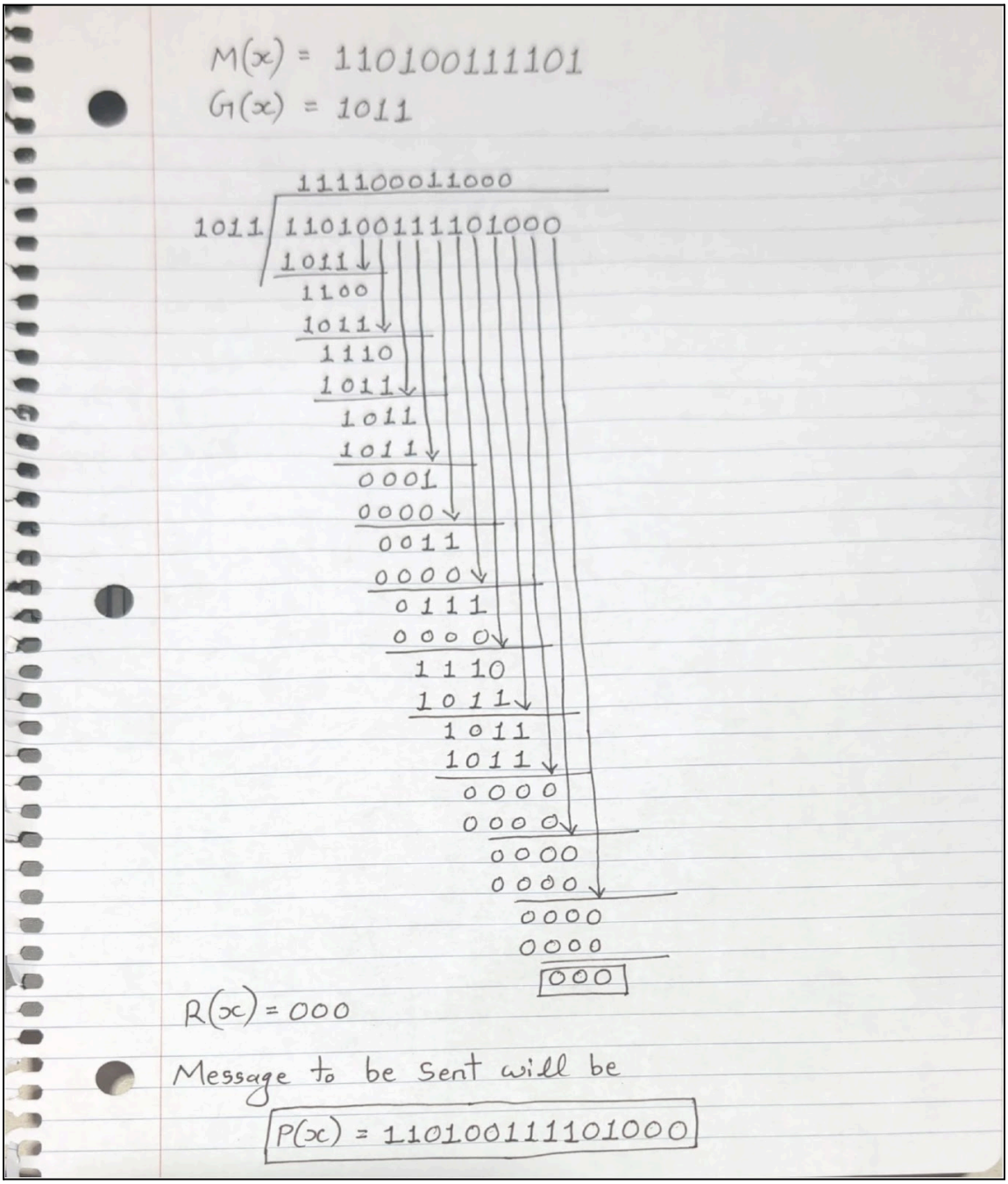
Exercise 1: CRC Warm-up Exercise

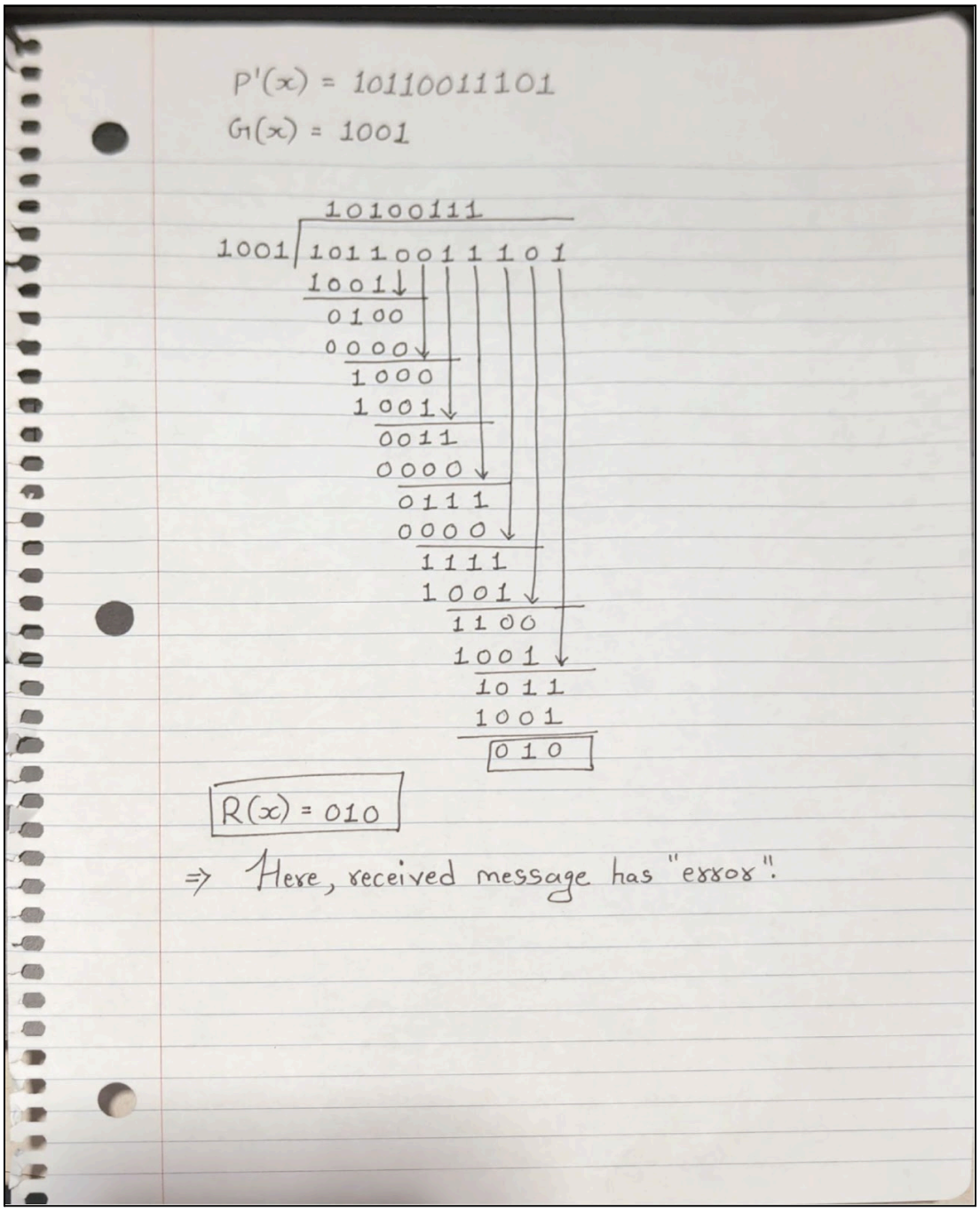
M(x) = 110100111101
G(x) = 1011

Here the degree of polynomial is 3 so we append 3 zeros at the end of M(x) for the CRC calculation.



Now the transmitted data P(x) is 110100111101000.

In the Second scenario we are given the received data P’(x) is 10110011101 and G(x) is 1001.



Here, we see that the remainder is not equal to zero; therefore, there is some error in the received data.

Exercise 2: CRC Simulation

(a) In this, I didn't change anything on the receiving side.

```
PS D:\MACS-Git\Adv. Topic in Networks\Assignments\A3> cd "d:\MACS-Git\Adv. Topic in Networks\Assignments\A3\" ; if ($?) { javac P2.java } ; if
($?) { java P2 }
G(x): 1011
M(x): 110100111101
P(x): 110100111101000
Enter the received message: 110100111101000
G(x): 1011
The received message is error-free.
PS D:\MACS-Git\Adv. Topic in Networks\Assignments\A3>
```

(b) In this, I changed 1 bit in the received message.

```
PS D:\MACS-Git\Adv. Topic in Networks\Assignments\A3> cd "d:\MACS-Git\Adv. Topic in Networks\Assignments\A3\" ; if ($?) { javac P2.java } ; if
($?) { java P2 }
G(x): 1011
M(x): 110100111101
P(x): 110100111101000
Enter the received message: 110100111001000
G(x): 1011
The received message has errors.
PS D:\MACS-Git\Adv. Topic in Networks\Assignments\A3>
```

Exercise 3: Study of Error Detection Capability of CRC

Experiment No.	Burst error length	Error detected? (Yes or No)
1	32	Yes
2	33	Yes
3	34	Yes
4	35	Yes
5	36	Yes
6	37	Yes
7	38	Yes
8	39	Yes
9	40	Yes
10	41	Yes
11	42	Yes
12	43	Yes
13	44	Yes
14	45	Yes
15	46	Yes
16	47	Yes
17	48	Yes
18	49	Yes
19	50	Yes
20	51	Yes
21	52	Yes
22	53	Yes
23	54	Yes

24	55	Yes
25	56	Yes
26	57	Yes
27	58	Yes
28	59	Yes
29	60	Yes
30	61	Yes
31	62	Yes
32	63	Yes
33	64	Yes
34	65	Yes
35	66	Yes
36	67	Yes
37	68	Yes
38	69	Yes
39	70	Yes
40	71	Yes
41	72	Yes
42	73	Yes
43	74	Yes
44	75	Yes
45	76	Yes
46	77	Yes
47	78	Yes
48	79	Yes
49	80	Yes
50	81	Yes