

Introduction to Coding Theory Assignment 3

Divij Singh

30/12/18

1 Q1

- (a) 00011
- (b) 01101
- (c) 10110
- (d) 00011
- (e) 11000

2 Q2

- (a) 00122
- (b) 00122
- (c) 22000
- (d) 20110

3 Q3

- (a)

Received x	$d(x, 101)$	$d(x, 111)$	$d(x, 011)$	Decoding
000	2	3	2	-
100	1	2	3	101
110	2	1	2	111
111	1	0	1	111
011	2	1	0	011
001	1	2	1	-
010	3	2	1	011
101	0	1	2	101

- (b)

Received x	$d(x,000)$	$d(x,001)$	$d(x,010)$	$d(x,011)$	Decoding
000	0	1	1	2	000
100	1	2	2	3	000
110	2	3	1	2	010
111	3	2	2	1	011
011	2	1	1	0	011
001	1	0	2	1	001
010	1	2	0	1	010
101	2	1	3	2	001

4 Q4

There are $n - 1$ codes, each with 2 codewords.