Assignment 3

COMP 1805 Winter 2017

1.

a. This graph is not simple since degree of V2 is 5. The maximum degree for each vertices must be less or equal than n – 1 in order to be simple.

2.

$V: \{1, 2, 3, 4, 5, 6, 7, 8\}$

$E: \{\{1,5\},\{2,4\},\{2,8\},\{3,5\},\{3,6\},\{3,8\},\{4,5\},\{5,6\},\{6,8\},\{7,8\}\}$

3.

-	1	2	3	4	5	6	7	8
1	0	0	0	0	1	0	0	0
2	0	0	0	1	0	0	0	1
3	0	0	0	0	1	1	0	1
4	0	1	0	0	1	0	0	0
5	1	0	1	1	0	1	0	0
6	0	0	1	0	1	0	0	1
7	0	0	0	0	0	0	0	1
8	0	1	1	0	0	1	1	0

4. $1: 5$

$2: 4, 8$

$3: 5, 6, 8$

$4: 2, 5$

$5: 1, 3, 4, 6$

$6: 3, 5, 8$

$7: 8$

$8: 2, 3, 6, 7$

5.

$V' = \{1, 2, 3, 4, 5, 6, 7, 8\}$

$E' = \{(1, 5), (2, 8), (3,6), (3, 8), (4, 2), (5, 3), (5, 4), (5, 6), (6, 8), (8, 7)\}$

6.

$V'' = \{3, 5, 6\}$

$E'' = \{\{3, 5\}, \{3, 6\}, \{5,6\}\}$

-	3	5	6
3	0	1	1
5	1	0	1
6	1	1	0

7. $E''' = \{\{2, 3\}, \{3, 4\}\}$

C = 2

8.

0: 9

1: 2

2: 1, 3

3: 2, 8

4: 7

5: 6, 8

6: 5

7: 4, 8

8: 3, 5, 7, 9

9: 0, 8

9.

-	0	1	2	3	4	5	6	7	8	9
0	0	1	0	0	1	0	0	0	0	0
1	1	0	1	0	0	0	0	0	0	0
2	0	1	0	0	0	0	0	0	0	0
3	0	0	0	0	0	1	0	0	1	0
4	1	0	0	0	0	0	0	1	0	0
5	0	0	0	1	0	0	1	0	0	0
6	0	0	0	0	0	1	0	1	0	0
7	0	0	0	0	1	0	1	0	0	0
8	0	0	0	1	0	0	0	0	0	1
9	0	0	0	0	0	0	0	0	1	0