Name: Connor Raymond Stewart
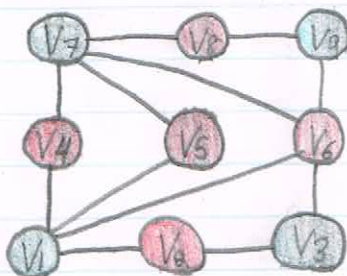ID: 101041125

MATH 3802 Tutorial March 19:

Tutorial:

①
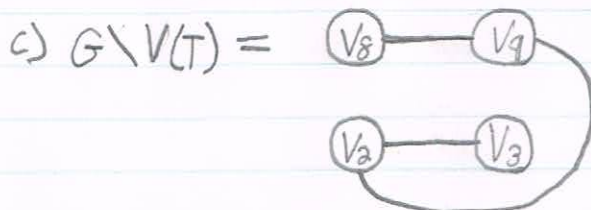

②

a) $M = \{V_1 V_5, V_6 V_7\}$

T	E(T)	O(T)
$\{\{V_4\}, \emptyset\}$		
$\{\{V_4, V_6, V_7\}, \{V_4 V_7, V_6 V_7\}\}$	V_4, V_6	V_7
$\{\{V_4, V_6, V_7, V_1, V_5\}, \{V_4 V_7, V_8 V_6,$ $V_1 V_4, V_1 V_5\}\}$	V_4, V_6, V_5	V_7, V_1

b) $M = V_1 V_5, V_4 V_7$
each edge in matching has
one end in E(T) & one
end in O(T) so we are
frustrated

c) $G \setminus V(T) = $

$M' = \{V_8 V_9, V_2 V_3\}$
$C' = \{V_2, V_8\}$

d)

$C' \cup O(T) = \{V_2, V_8\} \cup \{V_1, V_7\} = \{V_1, V_2, V_7, V_8\}$

$M \cup M' = \{V_1 V_6, V_4 V_7\} \cup \{V_8 V_9, V_2 V_3\}$

$\qquad = \{V_1 V_6, V_4 V_7, V_8 V_9, V_2 V_3\}$

$|C' \cup O(T)| = |M \cup M'| = 4$
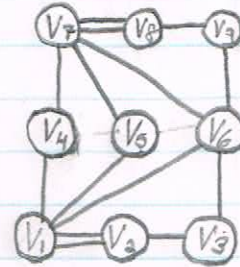
Remove all edges but:
$V_8 V_9, V_2 V_3, V_2 V_9$
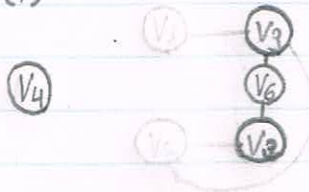
ASK:

let $M = \{V_1V_2, V_7V_8\}$, let $r = V_5$:

a)

T	E(T)	O(T)
$\{\{V_5\}, \emptyset\}$	V_5	$\emptyset$
$\{\{V_5, V_1, V_2\}, \{V_1V_5, V_1V_2\}\}$	V_2, V_5	V_1
$\{\{V_5, V_1, V_2, V_7, V_8\},$ $\{V_1V_5, V_1V_2, V_8V_7, V_7V_8\}\}$	V_2, V_5, V_8	V_1, V_7

b) $M = V_1V_2, V_4V_7$ & each edge in matching has one end in E(T) & one end in O(T) So we are frustrated

c) $G/V(T) =$

$M' = \{V_9V_6\}$
$C' = \{V_6\}$

d)

$C' \cup O(T) = \{V_6\} \cup \{V_1, V_7\} = \{V_1, V_6, V_7\}$

$M \cup M' = \{V_1V_2, V_4V_7\} \cup \{V_9V_6\}$
$= \{V_1V_2, V_4V_7, V_6V_9\}$

$|C' \cup O(T)| = |M \cup M'| = ③$