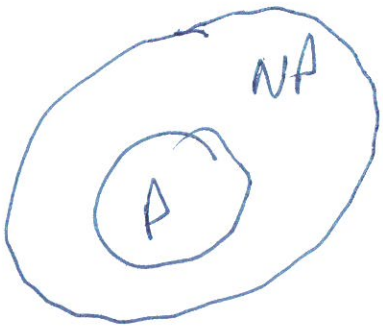
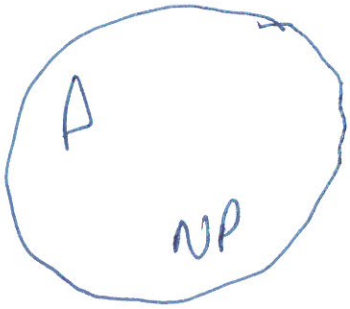
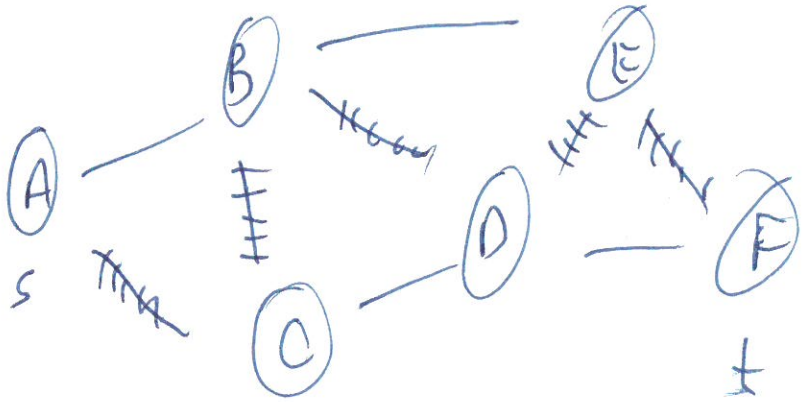




*

Hamiltonian Path



Certificate: <A, ~~C~~, B, D, E, F>

s t

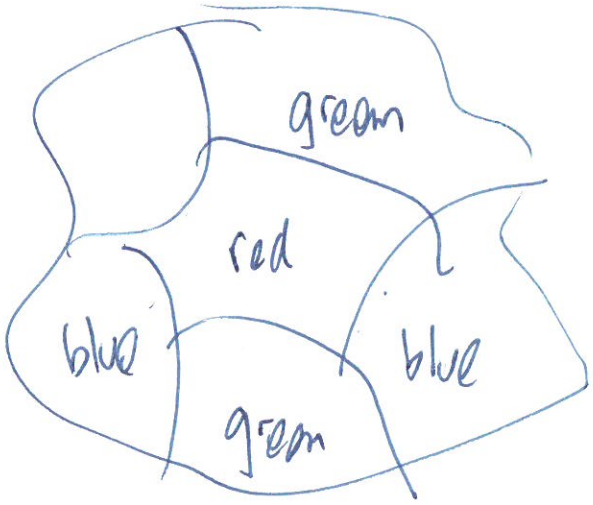
CLIQUE

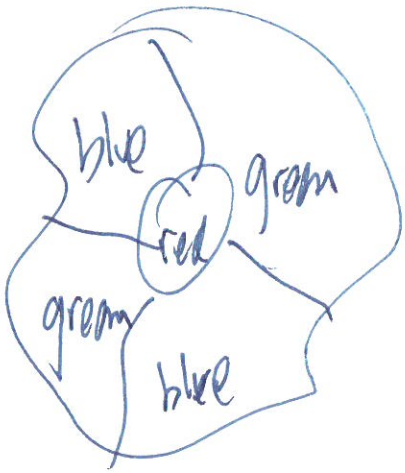
Certificate: $\langle v_1, v_2, \ldots v_k \rangle$

SUBSET

Certificate: $\langle y_1, y_2, \ldots y_m \rangle$

3-COLOR





N = "On input <G>:

(P) 1. Nondeterministically assign colors to each vertex.

(P) 2. Test that each edge contains vertices that have different colors.

(P) 3. Test that at most, 3 colors are used

(P) 4. If both tests succeed, then ACCEPT, else REJECT."

V = "On input $\langle G, C \rangle$:

(P) 1. Test that C contains at most 3 colors

(P) 2. Test that no adjacent vertices in G are given the same color by C.

(P) 3. If both tests pass, ACCEPT., else REJECT"