COT 3100 Practice Exam

1. Draw a 2-regular graph that is not connected.

2. Draw a planar embedding of $K_{2,3}$
3. Draw $C_6$, state its chromatic number, and say whether or not it is 2-connected.

4. True or false: the following graph is bipartite:
5. Label all cut-vertices and bridges (cut-edges) in the following graph:

6. Explain why a graph with \( n \) vertices where each vertex has degree at least \( n - 2 \) cannot be bipartite when \( n \geq 5 \).
7. How many different \( uv \) paths exist in the following graph:

8. For the following graph, draw its complement, state whether or not the graph is isomorphic to its complement.
9. Color the following graph using at most 4 colors.

10. Let $T$ be a tree with $n > 2$ vertices. We know that adding an edge to $T$ between non-adjacent vertices creates a cycle. How many cycles can be created if we add two edges to $T$?